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1. SAFETY RECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the iginal circuits. Service should be performed by qualified personnel only.

2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the damage resulting therefrom.

3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of service manual. **Electrical components having such features are identified by shading on the schematics and by (!) on the parts list ervie manual.** The use of a substitute replacent which does not have the same safety characteristics as the recommended replacement part shown in the parts list of service manual may cause shock, fire, or other hazards.

4. **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.** Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE: (⏦) side GND, ISOLATED (NEUTRAL) : (⊥) side GND and EARTH : (⏚) side GND. Don't short between the LIVEide GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time. If above note will not be kept, a fuse or any parts will be broken.

5. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).

6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediatelyt and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connect on, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resitor to the anode button.

8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

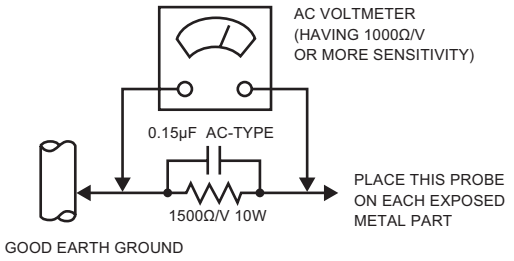
9. Isolation Check (Safety for Electrical Shock Hazard)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

10. The surface of the TV screen is coated with a thin film which can easily be damaged. Be very careful with it when handle the TV. Should the TV screen become soiled, wipe it with a soft dry cloth. Never rub it forcefully. Never use any cleaner or detergent on it.

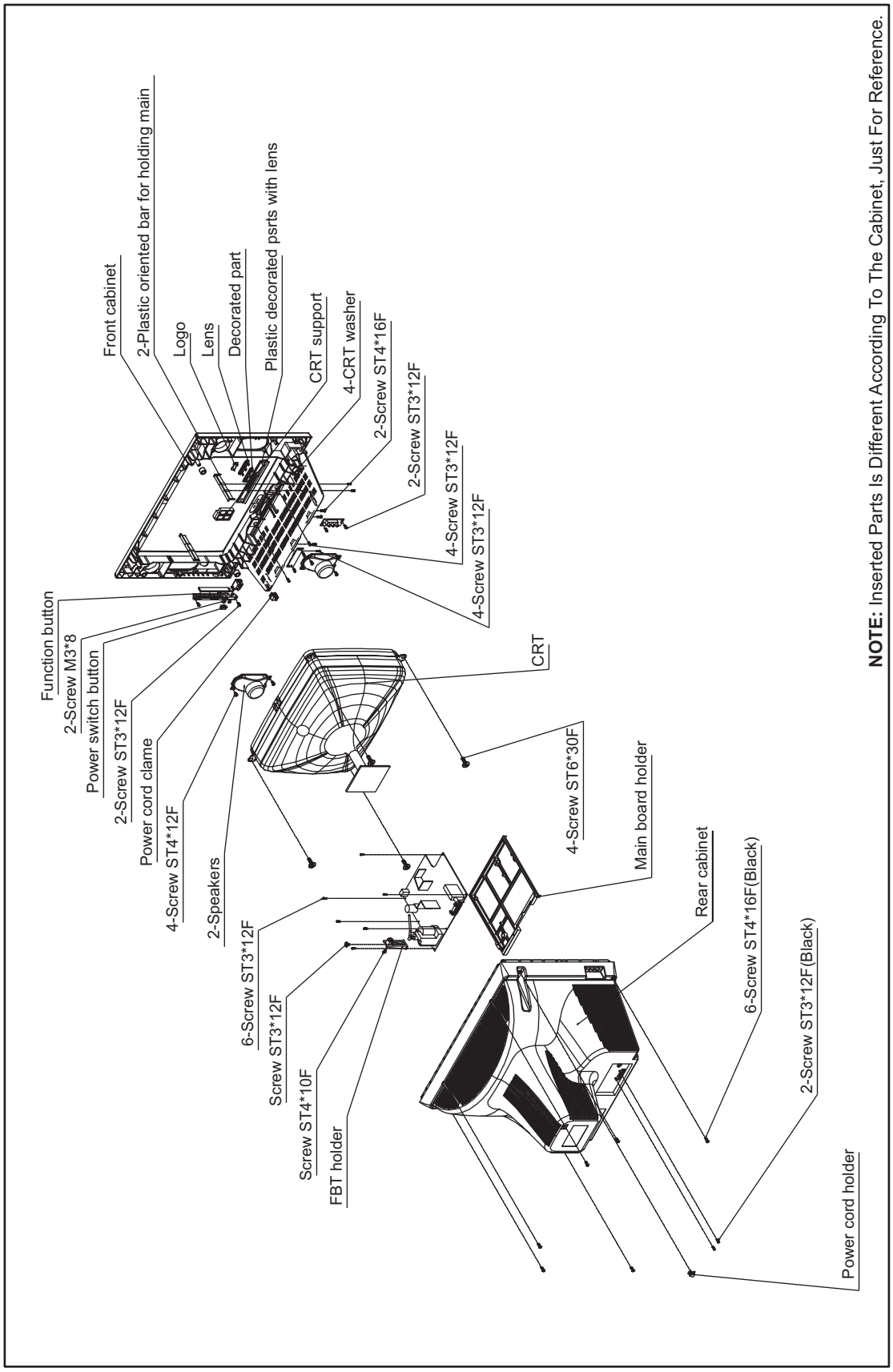
(1) Dielectric Strength Test
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis shuld withstand a voltage of 3000V AC (r.m.s.) for a period of one second (…Withstand a voltage of 1100V AC (r.m.s.) to an appliance. rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a periode of one second.) This method of test requires a test equipment not generally found in the service trade.

(2) Leakage Current Check
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.). However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

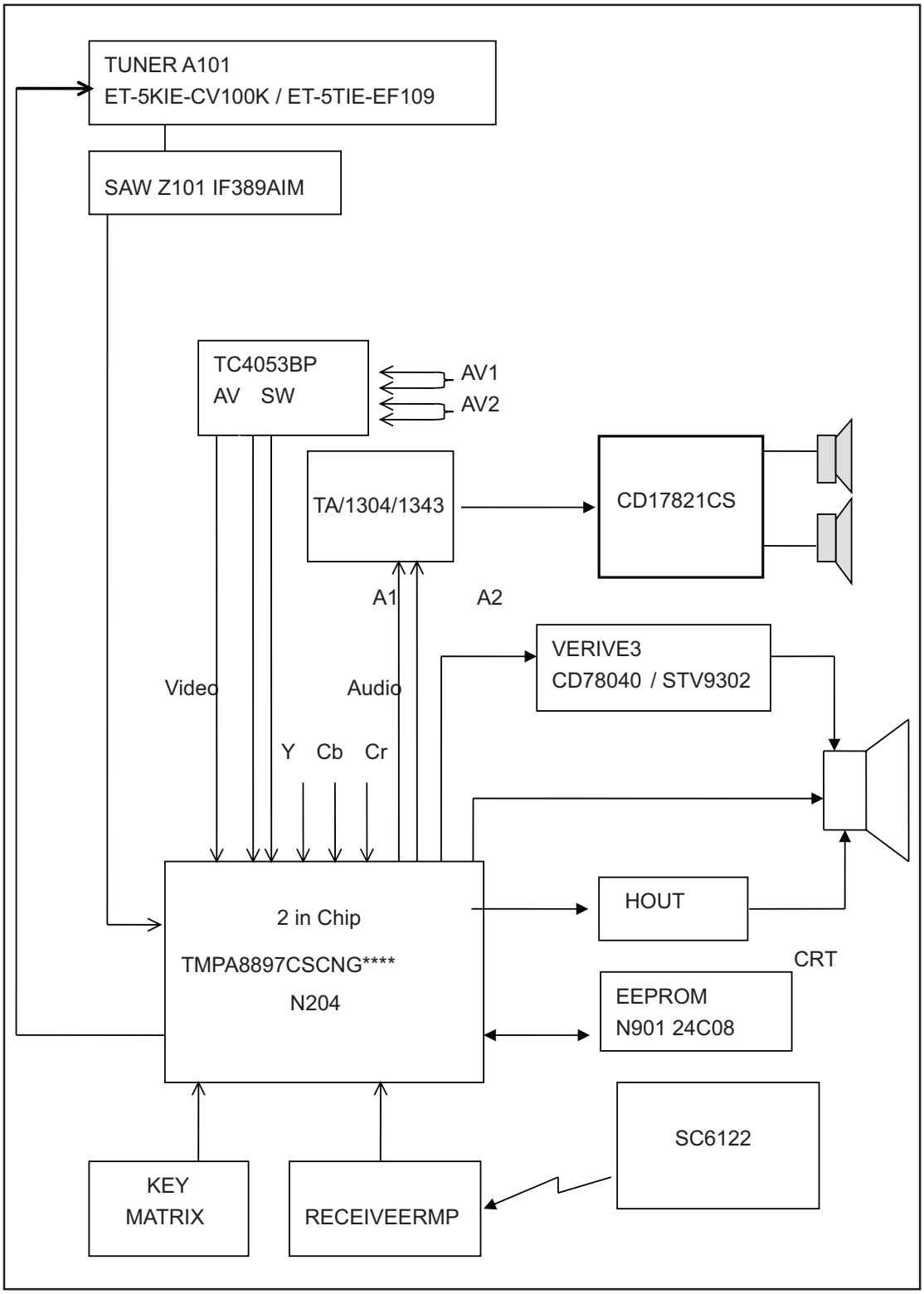
- Alternate Check Method
  Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.). However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



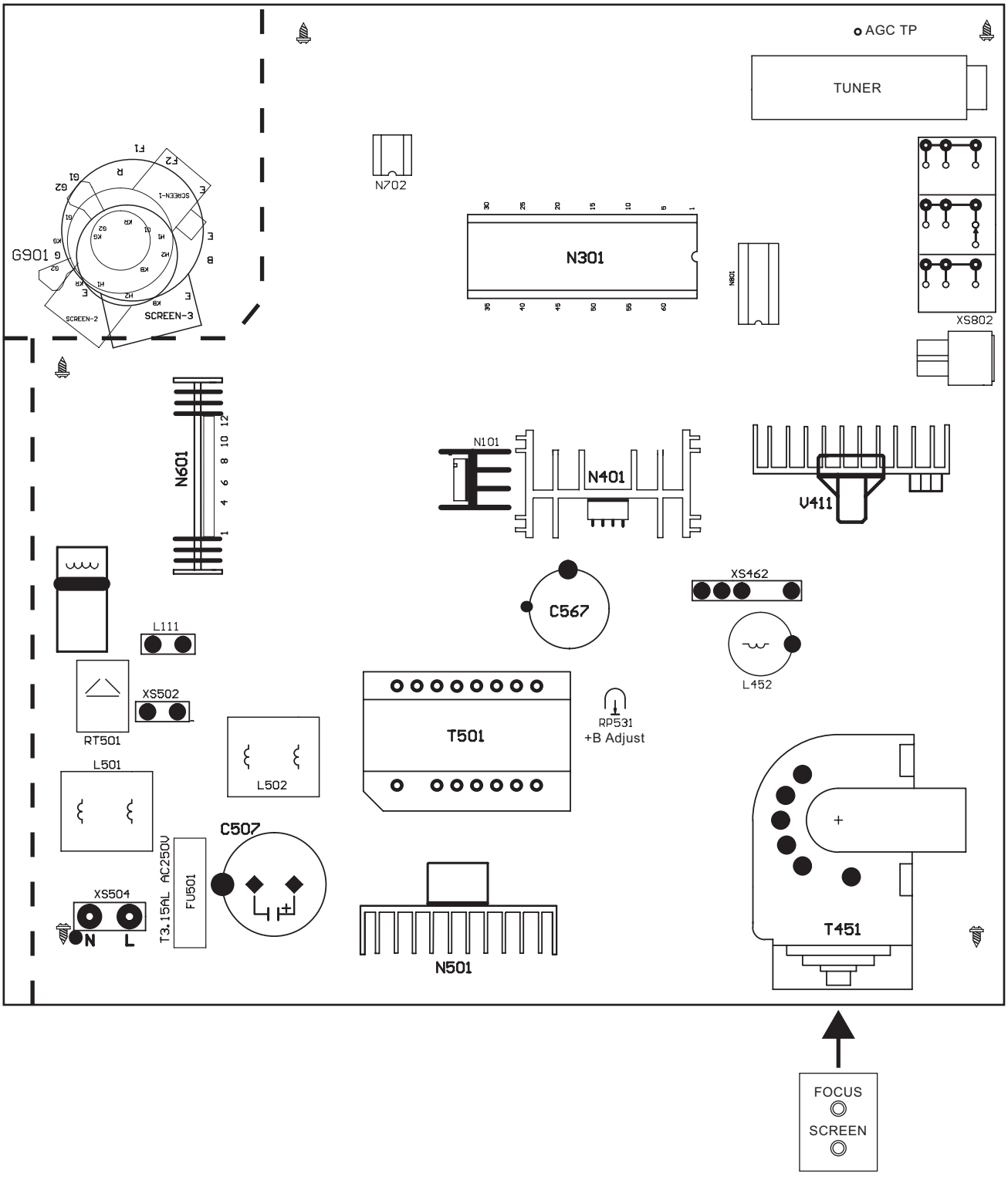
2. EXPLODED VIEW AND FINAL ASSEMBLY DETAILS



3 BLOCK DIAGRAM



4. DRAWING SITE OF MAIN PARTS



5. LIST OF REPLACEMENT PARTS

PCB NO.	DESCRIPTION	PCB NO.	DESCRIPTION
TUNER		**CAPACITOR**	
A101	TUNE ET-5T1E-EF109	C310	CAP CERAMIC 50V 0.01UF +80%-20%
CAPACITOR		C311	CAP ELECTROLYTIC 50V 0.47UF 20%
C104	CAP ELECTROLYTIC 50V 4.7UF 20%	C312	CAP ELECTROLYTIC 50V 1UF 20%
C107	CAP ELECTROLYTIC 16V 100UF 20%	C402	CAP CERAMIC 500V 1000P 10%
C112	CAP CERAMIC 50V 0.01UF +80%-20%	C403	CAP CERAMIC 500V 3900P 10%
C113	CAP CERAMIC 50V 0.01UF +80%-20%	C412	CAP METAL FLIM 250V 0.27UF 5% D=20MM
C114	CAP CERAMIC 50V 0.01UF +80%-20%	C413	CAP POLY 100V 0.1UF 10%
C201	CAP ELECTROLYTIC 16V 10UF 20%	C414	CAP ELECTROLYTIC 160V 1UF 20%
C202	CAP CERAMIC 50V 20P 5%	C418	CAP ELECTROLYTIC 250V 22UF 20%
C203	CAP CERAMIC 50V 1000P 10%	C421	CAP POLY 100V 0.1UF 10%
C204	CAP ELECTROLYTIC 50V 0.47UF 20%	C430	CAP ELECTROLYTIC 35V 47UF 20%
C205	CAP ELECTROLYTIC 50V 2.2UF 20%	C433	CAP ELECTROLYTIC 25V 1000UF 20%
C206	CAP ELECTROLYTIC 50V 2.2UF 20%	C443	CAP ELECTROLYTIC 50V 2.2UF 20%
C207	CAP ELECTROLYTIC 50V 1UF 20%	C444	CAP POLY 100V 0.1UF 10%
C208	CAP CERAMIC 50V 0.01UF +80%-20%	C446	CAP POLY 100V 2200P 10%
C209	CAP ELECTROLYTIC 16V 470UF 20%	C447	CAP POLY 100V 0.056UF 10%
C210	CAP CERAMIC 50V 0.01UF +80%-20%	C449	CAP ELECTROLYTIC 50V 100UF 20%
C212	CAP CERAMIC 50V 0.01UF +80%-20%	C456	CAP METAL FLIM 1.6KV 7.2N 5% D=22.5MM
C216	CAP ELECTROLYTIC 50V 1UF 20%	C463	CAP CERAMIC 500V 3900P 10%
C217	CAP ELECTROLYTIC 50V 1UF 20%	C500	CAP CERAMIC 2KV 680P 10%
C218	CAP ELECTROLYTIC 50V 1UF 20%	C501	CAP METAL FLIM AC280V 0.1UF 10%
C222	CAP ELECTROLYTIC 16V 470UF 20%	C504	CAP CERAMIC 1KV 1000P 10%
C227	CAP ELECTROLYTIC 16V 22UF 20%	C506 ⚠	CAP CERAMIC 1KV 1000P 10%
C228	CAP ELECTROLYTIC 16V 22UF 20%	C507	CAP ELECTROLYTIC 400V 100UF 20%
C229	CAP ELECTROLYTIC 50V 4.7UF 20%	C513	CAP ELECTROLYTIC 35V 10UF 20%
C230	CAP ELECTROLYTIC 16V 220UF 20%	C514	CAP POLY 100V 0.033UF 10%
C231	CAP POLY 100V 2200P 10%	C515	CAP POLY 63V 0.1UF 5%
C235	CAP ELECTROLYTIC 16V 100UF 20%	C516	CAP ELECTROLYTIC 35V 10UF 20%
C236	CAP ELECTROLYTIC 50V 1UF 20%	C517	CAP CERAMIC 50V 560P 10%
C237	CAP ELECTROLYTIC 50V 0.22UF 20%	C535 ⚠	CAP CERAMIC AC400V 2200P 20%
C238	CAP ELECTROLYTIC 16V 47UF 20%	C536 ⚠	CAP CERAMIC AC400V 1000P 10%
C243	CAP ELECTROLYTIC 16V 100UF 20%	C552	CAP CERAMIC 1KV 220P 10%
C289	CAP ELECTROLYTIC 50V 4.7UF 20%	C556	CAP CERAMIC 1KV 220P 10%
C290	CAP ELECTROLYTIC 50V 4.7UF 20%	C557	CAP ELECTROLYTIC 25V 470UF 20%
C293	CAP ELECTROLYTIC 50V 4.7UF 20%	C559	CAP ELECTROLYTIC 35V 100UF 20%
C294	CAP ELECTROLYTIC 50V 4.7UF 20%	C561	CAP ELECTROLYTIC 160V 10UF 20% D=5MM
C296	CAP ELECTROLYTIC 16V 47UF 20%	C563	CAP ELECTROLYTIC 160V 220UF 20%
C298	CAP ELECTROLYTIC 50V 1UF 20%	C565	CAP ELECTROLYTIC 35V 470UF 20%
C301	CAP ELECTROLYTIC 50V 1UF 20%	C571	CAP ELECTROLYTIC 16V 470UF 20%
C302	CAP ELECTROLYTIC 16V 47UF 20%	C573	CAP ELECTROLYTIC 35V 47UF 20%
C303	CAP POLY 100V 0.1UF 10%	C574	CAP CERAMIC 50V 0.01UF +80%-20%
C305	CAP POLY 100V 8200P 10%	C602	CAP CERAMIC 50V 390P 10%
C306	CAP ELECTROLYTIC 16V 10UF 20%	C612	CAP CERAMIC 50V 390P 10%
C308	CAP ELECTROLYTIC 16V 100UF 20%	C622	CAP CERAMIC 50V 390P 10%
C309	CAP ELECTROLYTIC 50V 4.7UF 20%	C630	CAP CERAMIC 2KV 2200P 10%

PCB NO.	DESCRIPTION	PCB NO.	DESCRIPTION
CAPACITOR		**IC**	
C632	CAP ELECTROLYTIC 16V 47UF 20%	V501 ⚠	IC FSCQ0765RT
C635	CAP CERAMIC 50V 0.01UF +80%-20%	VD515 ⚠	IC LTV817C
C701	CAP ELECTROLYTIC 25V 1000UF 20%	N550	IC 78L05
C702	CAP POLY 100V 0.1UF 10%	N701	IC CD17821CS
C705	CAP ELECTROLYTIC 50V 4.7UF 20%	N701	HEAT SINK SOUND HXXX0151-30
C710	CAP ELECTROLYTIC 50V 1UF 20%	N901	IC FM24C08A
C711	CAP POLY 100V 6800P 10%	N902	IC CW7808
C713	CAP ELECTROLYTIC 50V 1UF 20%	N902	HEAT SINK 8V HXX0050-30
C720	CAP ELECTROLYTIC 50V 1UF 20%	N904	IC KA33V/CW574CS
C721	CAP POLY 100V 6800P 10%	**RESISTOR**	
C722	CAP ELECTROLYTIC 50V 1UF 20%	R101	RESISTOR CARBON 1/6W 100KOHM 5%
C723	CAP ELECTROLYTIC 50V 1UF 20%	R106	RESISTOR CARBON 1/6W 220OHM 5%
C730	CAP ELECTROLYTIC 16V 10UF 20%	R107	RESISTOR CARBON 1/6W 220OHM 5%
C901	CAP CERAMIC 50V 33P 5%	R108	RESISTOR CARBON 1/6W 100OHM 5%
C902	CAP CERAMIC 50V 20P 5%	R108	RESISTOR CARBON 1/6W 3.3KOHM 5%
C903	CAP CERAMIC 50V 0.01UF +80%-20%	R111	RESISTOR CARBON 1/6W 150OHM 5%
C910	CAP CERAMIC 50V 33P 5%	R112	RESISTOR CARBON 1/6W 100OHM 5%
C911	CAP CERAMIC 50V 33P 5%	R113	RESISTOR CARBON 1/6W 33OHM 5%
C913	CAP CERAMIC 50V 0.01UF +80%-20%	R115	RESISTOR CARBON 1/6W 1.5KOHM 5%
C914	CAP ELECTROLYTIC 16V 47UF 20%	R121	RESISTOR CARBON 1/6W 100OHM 5%
C916	CAP ELECTROLYTIC 16V 47UF 20%	R201	RESISTOR CARBON 1/6W 560OHM 5%
C917	CAP ELECTROLYTIC 50V 0.47UF 20%	R203	RESISTOR CARBON 1/6W 3.3KOHM 5%
C924	CAP CERAMIC 50V 0.01UF +80%-20%	R205	RESISTOR CARBON 1/6W 100OHM 5%
C926	CAP ELECTROLYTIC 50V 2.2UF 20%	R206	RESISTOR CARBON 1/6W 100OHM 5%
C927	CAP ELECTROLYTIC 16V 100UF 20%	R207	RESISTOR CARBON 1/6W 100OHM 5%
C928	CAP ELECTROLYTIC 16V 100UF 20%	R208	RESISTOR CARBON 1/6W 100OHM 5%
C929	CAP CERAMIC 50V 0.01UF +80%-20%	R211	RESISTOR CARBON 1/6W 1MOHM 5%
C930	CAP CERAMIC 50V 0.01UF +80%-20%	R213	RESISTOR CARBON 1/6W 15KOHM 5%
C934	CAP CERAMIC 50V 1000P 10%	R215	RESISTOR CARBON 1/6W 68OHM 5%
C981	CAP ELECTROLYTIC 50V 4.7UF 20%	R217	RESISTOR CARBON 1/6W 100OHM 5%
INDUCTANCE		R219	RESISTOR CARBON 1/6W 100OHM 5%
L101	FILTER COIL 15UH-K	R220	RESISTOR CARBON 1/6W 100OHM 5%
L103	FILTER COIL 1UH-K	R221	RESISTOR CARBON 1/6W 15KOHM 5%
L201	FILTER COIL 15UH-K	R222	RESISTOR CARBON 1/6W 15KOHM 5%
L202	FILTER COIL 15UH-K	R225	RESISTOR CARBON 1/6W 100OHM 5%
L305	FILTER COIL 15UH-K	R228	RESISTOR CARBON 1/6W 1KOHM 5%
L414	LINEARITY COIL LX-036 D=10MM	R229	RESISTOR CARBON 1/6W 100OHM 5%
L451	RESISTOR CEMENT 3W 3.9OHM 10% D=10MM	R230	RESISTOR CARBON 1/6W 100OHM 5%
L501	FILTER COIL 15-LB6×1.0×6	R232	RESISTOR CARBON 1/6W 33KOHM 5%
L502	LINE FILTER LG-031-NLG	R233	RESISTOR CARBON 1/6W 220KOHM 5%
L901	FILTER COIL 15UH-K	R236	RESISTOR CARBON 1/6W 270OHM 5%
IC		R237	RESISTOR CARBON 1/6W 270OHM 5%
N203	IC HEF4053	R238	RESISTOR CARBON 1/6W 270OHM 5%
N204	IC 8891-****	R239	RESISTOR CARBON 1/2W 220OHM 5%
N402	IC CD78040	R243	RESISTOR CARBON 1/6W 10KOHM 5%
N402	HEAT SINK V HXXX0063-40	R244	RESISTOR CARBON 1/6W 5.6KOHM 5%

PCB NO.	DESCRIPTION	PCB NO.	DESCRIPTION
RESISTOR		RESISTOR	
R245	RESISTOR CARBON 1/6W 100KOHM 5%	R480	RESISTOR CARBON 1/6W 33KOHM 5%
R250	RESISTOR CARBON 1/6W 15KOHM 5%	R480	RESISTOR CARBON 1/6W 33KOHM 5%
R253	RESISTOR CARBON 1/6W 15KOHM 5%	R515	RESISTOR CARBON 1/6W 2.7KOHM 5%
R254	RESISTOR CARBON 1/6W 15KOHM 5%	R517	RESISTOR CARBON 1/6W 2.4KOHM 5%
R256	RESISTOR CARBON 1/6W 15KOHM 5%	R520	RESISTOR CARBON 1/2W 120KOHM 5%
R279	RESISTOR CARBON 1/6W 22KOHM 5%	R521	RESISTOR CARBON 1/2W 120KOHM 5%
R280	RESISTOR CARBON 1/6W 100OHM 5%	R522	RESISTOR CARBON 1/4W 8.2OHM 5%
R283	RESISTOR CARBON 1/6W 1KOHM 5%	R523	RESISTOR CARBON 1/6W 560OHM 5%
R290	RESISTOR CARBON 1/6W 10KOHM 5%	R531	RESISTOR GLASS GLAZE 1/2W 24MOHM +80%-20%
R291	RESISTOR CARBON 1/6W 15KOHM 5%	R552	RESISTOR CARBON 1/4W 5.6KOHM 5%
R292	RESISTOR CARBON 1/6W 100OHM 5%	R553	RESISTOR METAL 2W 12KOHM 5% D=15MM
R294	RESISTOR CARBON 1/6W 100OHM 5%	R555	RESISTOR CARBON 1/4W 150KOHM 5%
R295	RESISTOR CARBON 1/6W 15KOHM 5%	R556	RESISTOR CARBON 1/4W 47KOHM 5%
R301	RESISTOR CARBON 1/6W 270OHM 5%	R557	RESISTOR CARBON 1/6W 22KOHM 5%
R306	RESISTOR CARBON 1/6W 4.7OHM 5%	R558 ⚠	RESISTOR FUSE 1/2W 0.47OHM 5% D=15MM
R310	RESISTOR CARBON 1/6W 100OHM 5%	R560	RESISTOR CARBON 1/2W 3.3KOHM 5%
R312	RESISTOR CARBON 1/6W 100OHM 5%	R564	RESISTOR CARBON 1/2W 47KOHM 5%
R320	RESISTOR CARBON 1/6W 560OHM 5%	R565	RESISTOR METAL 2W 22KOHM 5% D=10MM
R321	RESISTOR CARBON 1/6W 10KOHM 5%	R566	RESISTOR CARBON 1/2W 3.3KOHM 5%
R322	RESISTOR CARBON 1/6W 8.2KOHM 5%	R572	RESISTOR CARBON 1/4W 47KOHM 5%
R326	RESISTOR CARBON 1/6W 270OHM 5%	R573	RESISTOR FUSE 1W 0.47OHM 5% D=15MM
R328	RESISTOR CARBON 1/6W 15KOHM 5%	R580	RESISTOR METAL 2W 68OHM 5% D=15MM
R330	RESISTOR CARBON 1/6W 220OHM 5%	R605	RESISTOR CARBON 1/2W 3.3KOHM 5%
R331	RESISTOR CARBON 1/6W 3.9KOHM 5%	R606	RESISTOR METAL 2W 12KOHM 5% D=15MM
R404	RESISTOR CARBON 1/6W 150OHM 5%	R607	RESISTOR CARBON 1/6W 470OHM 5%
R407	RESISTOR CARBON 1/2W 1.0KOHM 5%	R608	RESISTOR CARBON 1/6W 3.9KOHM 5%
R410	RESISTOR METAL 2W 2.0OHM 5% D=12.5MM	R615	RESISTOR CARBON 1/2W 3.3KOHM 5%
R413	RESISTOR METAL 1WS 4.7KOHM 5% D=12.5MM	R616	RESISTOR METAL 2W 12KOHM 5% D=15MM
R418	RESISTOR FUSE 1/2W 3.3OHM 5% D=15MM	R617	RESISTOR CARBON 1/6W 470OHM 5%
R420	RESISTOR CARBON 1/2W 220KOHM 5%	R618	RESISTOR CARBON 1/6W 3.9KOHM 5%
R423	RESISTOR CARBON 1/6W 10KOHM 5%	R626	RESISTOR METAL 2W 12KOHM 5% D=15MM
R424	RESISTOR CARBON 1/6W 15KOHM 5%	R627	RESISTOR CARBON 1/6W 470OHM 5%
R435	RESISTOR CARBON 1/6W 330KOHM 5%	R628	RESISTOR CARBON 1/6W 3.9KOHM 5%
R437	RESISTOR METAL 2W 270OHM 5% D=15MM	R629	RESISTOR CARBON 1/2W 3.3KOHM 5%
R442	RESISTOR CARBON 1/2W 330OHM 6%	R635	RESISTOR CARBON 1/6W 47KOHM 5%
R443	RESISTOR CARBON 1/6W 5.6KOHM 5%	R640	RESISTOR CARBON 1/6W 10KOHM 5%
R444	RESISTOR CARBON 1/6W 4.7OHM 5%	R641	RESISTOR CARBON 1/4W 2.2OHM 5%
R446	RESISTOR CARBON 1/6W 3.9KOHM 5%	R702	RESISTOR CARBON 1/6W 4.7KOHM 5%
R448	RESISTOR CARBON 1/6W 10KOHM 5%	R704	RESISTOR CARBON 1/6W 15KOHM 5%
R449	RESISTOR CARBON 1/6W 15KOHM 5%	R710	RESISTOR CARBON 1/6W 1KOHM 5%
R450	RESISTOR CARBON 1/6W 47KOHM 5%	R710	RESISTOR CARBON 1/6W 8.2KOHM 5%
R463	RESISTOR CARBON 1/2W 12KOHM 5%	R711	RESISTOR CARBON 1/6W 4.7KOHM 5%
R464	RESISTOR CARBON 1/2W 1.5OHM 5%	R713	RESISTOR CARBON 1/6W 1KOHM 5%
R467	RESISTOR FUSE 1W 0.47OHM 5% D=15MM	R715	RESISTOR CARBON 1/6W 2.2KOHM 5%
R473	RESISTOR CARBON 1/6W 100KOHM 5%	R718	RESISTOR CARBON 1/6W 4.7KOHM 5%
R480	RESISTOR CARBON 1/6W 18KOHM 5%	R720	RESISTOR CARBON 1/6W 8.2KOHM 5%

PCB NO.	DESCRIPTION	PCB NO.	DESCRIPTION
RESISTOR		**TRANSISTOR**	
R721	RESISTOR CARBON 1/6W 4.7KOHM 5%	V301	TRANSISTOR 2SC1815Y
R722	RESISTOR CARBON 1/6W 8.2KOHM 5%	V411	TRANSISTOR 3DD5023
R723	RESISTOR CARBON 1/6W 8.2KOHM 5%	V444	TRANSISTOR 2SC2383-O
R725	RESISTOR CARBON 1/6W 33KOHM 5%	V551	TRANSISTOR 2SC1815Y
R726	RESISTOR CARBON 1/6W 47KOHM 5%	V601	TRANSISTOR 2SC2482Y
R727	RESISTOR CARBON 1/6W 15KOHM 5%	V611	TRANSISTOR 2SC2482Y
R728	RESISTOR CARBON 1/6W 4.7KOHM 5%	V621	TRANSISTOR 2SC2482Y
R730	RESISTOR CARBON 1/6W 1KOHM 5%	V630	TRANSISTOR 2SC1815Y
R900	RESISTOR CARBON 1/6W 100OHM 5%	V721	TRANSISTOR 2SC1815Y
R901	RESISTOR CARBON 1/6W 100OHM 5%	V722	TRANSISTOR 2SC1815Y
R904	RESISTOR CARBON 1/6W 1KOHM 5%	V900	TRANSISTOR 2SC1815Y
R905	RESISTOR CARBON 1/6W 5.6KOHM 5%	V902	TRANSISTOR 2SA1015Y
R909	RESISTOR CARBON 1/6W 47OHM 5%	V904	TRANSISTOR HSB892/KTB772
R910	RESISTOR CARBON 1/6W 47OHM 5%	V905	TRANSISTOR 2SD400D
R916	RESISTOR CARBON 1/6W 3.9KOHM 5%	V980	TRANSISTOR 2SC1815Y
R918	RESISTOR CARBON 1/6W 4.7KOHM 5%	DIODE	
R919	RESISTOR CARBON 1/6W 4.7KOHM 5%	VD230	DIODE IN4148
R920	RESISTOR CARBON 1/6W 5.6KOHM 5%	VD232	DIODE IN4148
R922	RESISTOR CARBON 1/6W 10KOHM 5%	VD233	DIODE IN4148
R925	RESISTOR CARBON 1/6W 1KOHM 5%	VD234	DIODE IN4148
R927	RESISTOR CARBON 1/6W 22KOHM 5%	VD292	DIODE HZ4A2
R928	RESISTOR CARBON 1/6W 4.7KOHM 5%	VD401	DIODE IN4148
R929	RESISTOR CARBON 1/6W 22KOHM 5%	VD403	DIODE RF107
R930	RESISTOR CARBON 1/6W 1.2KOHM 5%	VD414	DIODE RF107
R935	RESISTOR CARBON 1/6W 10KOHM 5%	VD434	DIODE 1N4004
R939	RESISTOR CARBON 1/6W 22KOHM 5%	VD435	DIODE RF107
R941	RESISTOR CARBON 1/6W 4.7KOHM 5%	VD436	DIODE HZ11C1
R943	RESISTOR CARBON 1/6W 12KOHM 5%	VD503	DIODE TVR4N
R945	RESISTOR CARBON 1/6W 560OHM 5%	VD504	DIODE TVR4N
R946	RESISTOR CARBON 1/6W 1.5KOHM 5%	VD505	DIODE TVR4N
R947	RESISTOR CARBON 1/6W 8.2KOHM 5%	VD506	DIODE TVR4N
R960	RESISTOR CARBON 1/4W 470HM 5%	VD514	DIODE RF107
R961	RESISTOR CARBON 1/2W 47OHM 5%	VD516	DIODE IN4148
R980	RESISTOR CARBON 1/6W 10KOHM 5%	VD517	DIODE RF107
R981	RESISTOR CARBON 1/6W 10KOHM 5%	VD518	DIODE HZ4A2
R988	RESISTOR CARBON 1/6W 4.7OHM 5%	VD519	DIODE HZ18C2
R989	RESISTOR CARBON 1/6W 10KOHM 5%	VD551	DIODE HZ7A3
RP551	VARISTOR 1/2W 2KOHM 20%	VD552	DIODE RGP15D
TRANSFORMER		VD553	DIODE RF105
T401	H.DRIVER TRANS TD-0004-OL	VD554	DIODE RF105
T402	TRANS FLY BACK T9XX0124E-X	VD556	DIODE RGP15J D=15MM
T501	TRANS POWER TM-0105-ON	VD574	DIODE HZ4A2
TRANSISTOR		VD601	DIODE IN4148
V203	TRANSISTOR 2SA1015Y	VD611	DIODE IN4148
V230	TRANSISTOR 2SA1015Y	VD621	DIODE IN4148
V290	TRANSISTOR 2SC1815Y	VD901	DIODE IN4148

PCB NO.	DESCRIPTION		
TRANSISTOR			
VD902	DIODE HZ4A2		
VD921	DIODE HZ6B1		
CRT SOCKET,SAW FILTER ,CRYSTAL			
XZ601	CRT SOCKET GZS8-6-FD		
Z101	SAW FILTER IF389A1M		
Z304	FILTER F10.7MHZ		
Z901	CRYSTAL 8MHZ(18.5PF)		
OTHERS			
R502A ⚠	PTC MF72 4.7OHM D=11MM		
PS501	PTC MZ72B 9OHM AC270V		
F501 ⚠	FUSE 3.15A 250V		
F501A	FUSE SOCKET		
F501B	FUSE SOCKET		
XZ201	AV SOCKET AV9-01K-D		
XZ207	4S SOCKET TJC3-4A(S)		
XZ411	DY SOCKET TJC2-5A(M)		
XZ501	2S SOCKET TJC1-2A-10MM(L)		
XZ504	2S SOCKET TJC2-2A-7.5MM(M)		
XZ602	4P LINE 400MM		
XZ603	6P LINE 400MM		
XZ711	4S SOCKET TJC3-4A(S)		
XZ901	3S SOCKET TJC3-3A(S)		
XZ903	3S SOCKET TJC3-3A(S)		
XZ905	2S SOCKET TJC3-2A(S)		
Z902	MAIN PCB BSC7.820.290-C(247×247MM)		
ZN402	SCREW GB845F SF3×10MM		
ZN701	SCREW GB845F SF3×8MM		
ZN902 ⚠	SCREW GB845F SF3×8MM		
ZV411	SCREW GB845F SF3×10MM		
ZV501	SCREW GB845F SF3×10MM		
TP602	1S SOCKET TJC1-1A(L)		
V411	HEAT SINK H HXXX0156-40		
V501	HEAT SINK POWER HXXX0146-40		
V600 ⚠	CRT		
	REMOTE CONTROL YKQ8891-***		

Note: ⚠ Security Parts.

6. REPLACEMENT OF MEMORY IC

6.1 MEMORY IC.

This TV uses memory IC. In the memory IC are memorized data for correctly operating the video and deflection circuits. When replacing memory IC, be sure to use IC written with the initial value of data.

6.2 PROCEDURE FOR REPLACING MEMORY IC

(1) Power off
Switch the power off and unplug the power cord from AC outlet.
(2) Replace IC
Be sure to use memory IC written with the initial data values.
(3) Power On
Plug the power cord into the AC outlet and switch the power On.

7. SERVICE ADJUSTMENT

Descriptions for the operation of factory mode

AGING MODE

1. With factory remote controller to press “D-mode” directly enter AGING mode, screen will display “factory”. Press “DISP” key to exit “factory” to enter “WHITE BALANCE”.
2. With user remote controller to press “MENU” key to turn to “TUNING” menu, press “CH-” key to Select “TARGET POS” bar, Input“2483”, “6483”, “6568”, then enter AGING mode.
3. At “factory” mode or “AGING” mode, press “SYS”, “SOUND”, “SLEEP” key to adjust data, screen will display relevant menu+factory. Press “MENU” to display main Menu to adjust all data. Press “DISP” to exit, screen only display “factory”.

WHITE BALANCE MODE

1. At AGING mode, press “D-mode” exit “factory” to enter WHITE BALANCE mode.
2. Press “D-mode” key two time (factory key) to enter WHITE BALANCE mode.
3. At “factory” mode, press figure key “0” enter WHITE BALANCE mode.
4. At WHITE BALANCE mode, press “MUTE”, one horizontal bright line appear on screen, use “1,4” key to adjust RCUT, “2,5” key to adjust GCUT, “3,6” key to adjust BCUT.

ENTER FACTORY MODE

A. USER REMOTE CONTROLLER

1. At first enter AGING mode, at AGING mode, press “DISP” to exit “factory”, enter WHITE BALANCE mode.
2. At WHITE BALANCE mode, press figure 1,2,3,4,5,6, DISP to enter “factory” mode.

B. Press “D-mode” key three time (factory key) to enter factory’s adjustment menu.

ENTER FACTORY MODE F8~F15

Press “2483”,”6483”,”6568” enter F8, and also open F8-F15. Press “Mute” Key to turn Page Up and “RETURN” key to turn Page Down for factory mode menu. Press figure Key 1, 2, 3, 4, 5, 6, 7, 8, 9 to enter “factory” mode F1~F9.

EXIT FACTORY MODE

1. Press “DISP” to exit from “factory” menu.
2. Press power switch, exit “factory’s mode.

EXPLANATION FOR ADJUSTMENT SPEED KEY

After entering factory mode, some remote controller key function will change to suit for the production adjustment.

1. Press “MUTE” key to turn page up, press “RETURN” key to turn page down.
2. Press “CH+” and “CH-“ key to select item, and press “VOL+” and “VOL-” key to change data value.
3. Press “SLEEP” key to display CHIP inner 6 kinds test signal.

White Balance adjustment

OSD	Descriptions	Recommend Data	Max
RC	R-CUT	110	255
GC	G-CUT	110	255
BC	B-CUT	110	255
GD	G-Diver	60	127
BD	B-Driver	72	127
U.BLK	U signal black level adjust	8	15
V.BLK	V signal black level adjust	8	15
S.RY	SECAM, R signal black level adjust	8	15
S.BY	SECAM, B signal black level adjust	8	15

Notes:
press “MUTE”, one horizontal bright line appear on screen, use “1,4” key to adjust RCUT, “2,5” key to adjust GCUT, “3,6” key to adjust BCUT.

Geometry parameter adjustment for PAL (Not available for NTSC)

OSD	Descriptions	Recommend Data	Max
H.PHASE	Horizontal Phase for 50Hz	18	31
V.SIZE	Vertical Amplitude for 50Hz	20	63
V.POS	Vertical Phase for 50Hz	02	15
V.LIN	Vertical Linearity for 50Hz	15	31
V.SC	V-S correction for 50Hz	15	31
HBOW	H Bow correction for 50Hz	4	7
HPARA	H Para correction for 50Hz	4	7
H.BLK.RIGHT	H.Right Blanking	0	07
H.BLK.LEFT	H.Left Blanking	0	07

Geometry parameter adjustment for NTSC (offset for PAL system, NTSC only)

OSD	Descriptions	Recommend Data	Max
NT.H.PHASE	Horizontal Phase for 60Hz	10	20
NT.V.SISE	Vertical Amplitude for 60Hz	10	20
NT.V.POS	Vertical Phase for 60Hz	11	20
NT.V.LIN	Vertical Linearity for 60Hz	10	20
NT.V.SC	V-S correction for 60Hz	10	31
NT.HBOW	H Bow correction for 60Hz	4	7
NT.HPARA	H Para correction for 60Hz	4	7
V.BLK.TOP	V.Top Blanking	0	3
V.BLK.BTM	V.Bottom Blanking	0	3

Brightness, Contrast, Color adjustment

OSD	Descriptions	Recommend Data	Max
SUB.CONT	Sub Contrast	15	15
SUB.BRIGHT	Brightness	0	-63~63
SUB.COLOR	Sub Color	10	-128~—+127
S.SUB.COLOR	Sub Color for SECAM	64	127
RF.AGC	IF Gain	30	63
BACKGROUND	Background 0:OFF 1:ON	1	1
BACK.COLOR	BACK COLOR, 0:blue 1:black	0	1
POW.CONT	Brightness boost speed for “POWER ON”	5	15
LOCK	Child lock	0	1
LOGO MOVE	LOGO MOVE 0:OFF 1:ON	0	1

OSD1 adjustment

OSD	Descriptions	Remark	Recommend Data
MENU BACK	MENU translucent background selection	0:OFF 1:ON	1
MENU ICON	MNEU icon display selection	0:OFF 1:ON	1
OPEN CURT.	Curtain style when switch on	0:OFF 1:ON	1
CLOSE CURT.	Curtain style when switch off	0:OFF 1: ON	1
CALENDER	Calendar switch	0:OFF 1: ON	1
P.ON.LOGO	LOGO display when power on	0:OFF 1:SET	0
NO.SG.LOGO	LOGO display without signal	0:OFF 1:SET	0
OSD.CONT	OSD contrast	0:95IRE 1:60IRE 2:70IRE 3: 80IRE	1
ANALOG ADJ	Adjust main MENU simulation value, Whether make main MENU disappear	0:No disappear 1:disappear	0

Function control adjustment

OSD	Descriptions	Recommend Data	Recommend Data
TV	TV SWITCH 0:OFF 1:ON	1	1
AV2	AV2 SWITCH 0: OFF 1: ON	1	1
DVD	DVD SWITCH 0: OFF 1: ON	1	1
FM	FM SWITCH 0: OFF 1: ON	0	1
BG	BG 0: OFF 1: ON	1	1
I	I SWITCH 0: OFF 1: ON	1	1
DK	DK SWITCH 0: OFF 1: ON	1	1
M	M SWITCH 0: OFF 1: ON	1	1
FM-BAND	SOUND IF MODULATE WIDTH, 0: BG\DK\I division 1: no division	0	1

Screen Protection OSD position and H.V. compensation

OSD	Descriptions	Recommend Data	Max
LEFT	Left position limit for Screen protection OSD moving	16	255
RIGHT	Right position limit for Screen protection OSD moving	125	255
TOP	Top position limit for Screen protection OSD moving	24	255
BOTTOM	Bottom position limit for Screen protection OSD moving	180	255
CURT.WAIT.TIME	Wait time for pulling curtain	10	188
CURT.CENT	Center position for pulling curtain	160	255
CURT.STEP	Speed for pulling curtain	3	16
OSD.H.POSI.	Horizontal position for Screen protection OSD	40	127
OSD.V.POSI	Vertical position for Screen protection OSD	18	47
ZOOM	ZOOM	0	15

OSD2 adjustment

OSD	Descriptions	Recommend Data	Max
POS.TIMER	Black screen time adjustment for exchange channels, 8MS time for data “1”	32	255
CH DARK	Black screen for exchange channels 0:OFF 1:ON	0	1
FRANCE	France 0:OFF 1:ON	1	1
RUSSIAN	Russian 0:OFF 1:ON	1	1
T.VIET	Vietnam 0:OFF 1:ON	0	1
TURKEY	Turkey 0:OFF 1:ON	0	1
ARABIA	Arabia 0:OFF 1:ON	0	1
PERSIA	Persia 0:OFF 1:ON	0	1
GERMAN	German 0:OFF 1:ON	0	1
ITALIAN	Italian 0:OFF 1:ON	0	1

OSD3 Main MENU Color adjustment

OSD	Descriptions	Recommend Data	Max
UP BOX BACKGROUND	Background color selection for up window of main menu	15	15
UP BOX MOVE	Color selection to pitch on picture in up window of main MENU	2	15
UP ICON ACKGROUND	UP ICON color selection in main MENU	1	07
UP ICON MOVE	Color selection to pitch on UP ICON in main MENU	4	07
DOWN BOX KGROUND	Background color selection for down window of main menu	15	15
DOWN BOX MOVE	Color selection to pitch on menu item bar in down window of main MENU	15	15
DOWN TEXT GROUND	Character color selection for down window in main MENU	2	07
DOWN TEXT MOVE	Color selection to pitch on character in down window of main MENU	4	07

Notes:
Press “MENU” key on this page, blue screen MENU appear, and also display “FACTORY”,
directly use P+,P-,V+,V- key to adjust all items color in MENU, after adjustment then press “DISP” to exit.

VOLUME Parameters adjustment 1

OSD	Descriptions	Recommend Data	Max
S. AUDIO	When video input, sound input from AV1 or AV2, 0:AV1 1:AV2	0	1
AUDIO IN	Sound input combination, 0: Stereo 1: 32PIN 2: 22PIN	0	2
TV.MUTE	MUTE control without TV signal, 0:TV no MUTE 1:MUTE	1	1
AV.MUTE	MUTE control without AV signal, 0:AV no MUTE 1:MUTE		1
ALC GAIN	Volume automatic control grade, 0:off ,1:1.1Vp-p, 2:1.6Vp-p, 3:2.3Vp-p	1	3
Sound IC	Sound IC selection, 0: OFF 1: Balance 2:TA1343 3:TA1304	0	3
S.WOOFER	Woofer switch 0: OFF 1: ON	0	1
BALC	Sound Balance center value	64	114
REMOTE	Remote control code selection: 0:9028-0E0E 1:6122-BF40 2:7461-611C 3:7461-1AA1 4: AUTO	4	4

High, Middle, Low simulation curve adjustment

OSD	Descriptions	Minimum	Middle	Recommend Data	Max
CONTRAST	Contrast	00	95	127	127
BRIGHT	Brightness	64	69	53	127
COLOR	Color	15	64	69	127
TINT	Tint	40	58	66	127
SHARP	Sharpness	32	32	X	63
VOLUME	Volume	64	96	127	127
BASS	Bass	24	72	X	127
TREBLE	Treble	40	X	X	127
WOOFER	Woofer	114	X	X	127

Register control to Color

OSD	Descriptions	Recommend Data				Max
		TV/PAL	TV/NTSC	AV	DVD	
Y.DELAY	Brightness delay	5	3	3	3	7
DEMO.PHASE	Color modulate amplitude & phase	0	1	1	3	2
P/N ID	Color sensitivity	0	0	1	1	1
KILLER.OFF	Brightness Killer switch	0	0	0	0	1
SYS.SHARP	Different status SHARP value	37	37	37	37	63

Notes:
Y DELAY TIME
0:0ns 1:40ns 2:80ns 3:120ns 4:160ns 5:200ns 6:240ns 7:280ns

Chip pins status control

OSD	Descriptions	Recommend Data	Max
PANEL KEY DETECT	Whether “POWER ON” to test voltage level for control key PCB, 0: 1:default TOSHIBA	0	1
REMOTE KEY LOVE	Whether remote control key has “FAVOURITE” function: 0:as Up,Down,Left,Right key 1:as Favorite, Scan, Music key	1	1
23PIN	TMPA889X Chip Tint signal input or CVBS input 0:Tint signal 1:CVBS	0	1
59PIN 50/60HZ-UHF	0:50/60HZ 1:High level When UHF	0	1
31PIN	TMPA8891 Chip 31pins function 0:SIF OUT 1: AU OUT 2. 3:NO USE	0	2
56PIN 3 STATUS	56pins function, 3 status ? 0:High & Low two level 1:High, Middle, Low three level	0	1
56PIN V.CHG	56pins function,TV/AV1/AV2 three status voltage selection 0:0V 2.5V 5V 1:0V 5V 2.5V	0	1
64PIN	64pins function, “POWER ON” level selection: 0:Low level “ON”, 1:High level “ON”	0	1
VIF	mage IF 0:38M 1:38.9M 2:45.75M		2
VIDEO DSP USB	AV2 DISPLAY USB		1

Function control

OSD	Descriptions	Recommend Data	Max
V.AGC.DC	V. AGC power source selection, 0: external 1: inner	1	1
PIF.LEVER	CVBS output amplitude control, 00:1.1V 3:2.4V	3	3
CVBS.PASS	Whether CVBS output pass band filter, 0: PASS 1: NO PASS	0	1
POS.NO.	Channels quantity selection, 0:248 1:256	0	1
TUNING.MODE	Tuning mode, 0:VS 1:FS	0	1
TUNER.TYPE	Frequency Synthesize Tuner selection 0:38M 1:38A 2:38.9M 3:38.9A	0	3
POWER.TIME	Cold “POWER ON” power pin wait time: 0:0 second, 1:1 second, 2:2 seconds, 3:3 seconds	0	3
STANBY.MODE	“POWER ON” power pin memory status, 0:Remember status 1:Stand-by status, remote control to “POWER ON” 2:Do not remember last time “POWER ON” status automatic “POWER ON”	0	2
U.BAND	Tuner U band level selection, 0:00 1:11	1	1

Register control to ABCL, Brightness

OSD	Descriptions	Recommend Data	Max
ABL.POINT	Start point for automatic brightness control 0:0V,1:-0.2V,2:-0.3V,3:-0.4V	2	3
ACL.ST	Start point for automatic contrast control, 0:0V,1:-0.2V,2:-0.3V,3:-1V(OFF)	1	3
ABL.GAIN	Start point for automatic brightness control gain 0:-0.2V,1:-0.35V,2:-0.5V,3:-0.65V;	3	3
YPL	Brightness peak value, 0:OFF 1:105IRE	0	1
BS.SW	Black level delay switch, 0:OFF 1:105IRE	1	1
BS.START	Start point for black level delay 0:30IRE, 1:40IRE, 2:50IRE, 3:75IRE	3	3
Y.GAMMA	Brightness Gamma correction 0:OFF, 1:78IRE, 2:68IRE, 3:58IRE	0	3
P.OFF.RGB	“POWER OFF” brightness vanish, 0:OFF 1: Brightness vanish : RGB/Cut as 0 2: Brightness vanish, RGB/Cut as FF	0	2
SHARP.BLANCE	Balance adjustment for Vertical line roll	4	7

Register control to Sound trap

OSD	Descriptions	Recommend Data				Max
		BG	DK	I	M	
S.TRAP F0	Sound trap center frequency width	08	08	08	03	15
S.TRAP Q	Sound trap Q value	0	0	0	0	3
S.TRAP GD	Sound trap GD value	2	2	2	2	3
S.TRAP HP/LP	Sound trap HP/LP value	0	0	0	3	3
STANDARD	Standard status contrast, brightness, color, sharpness	50	50	50	50	100
MILD	Lild status contrast, brightness, color, sharpness	30	30	40	30	100
VIVID	Vivid status contrast, brightness, color, sharpness	70	70	60	60	100
DYNAMIC	Dynamic status contrast, brightness, color, sharpness	80	80	50	40	100

H. Synchronization parameters adjustment

OSD	Descriptions	Recommend Data	Max
SYNC.DET	H.Sync. test mode, 0: inner sync., 1: external sync.	0	1
SYNC.SEARCH	Inner sync. searching, Sync. signal test mode	14	15
SYNC.BB	Inner sync. blue screen, Sync. signal test mode	14	15
BB.COUNT	Inner sync. Blue screen, Sync. Signal counting quantity	04	255
PYNX	External sync. Status H.Sync. pulse counting maximum	46	63
PYNN	External sync. Status H.Sync. pulse counting minimum	24	63
PYXS	External sync. Searching status H.Sync. pulse counting maximum	34	63
PYNS	External sync. Searching status H.Sync. pulse counting minimum	30	63

Seldom used adjustment items 1

OSD	Descriptions	Recommend Data	Max
HAFC	AFC gain	0	255
VCEN	V. center value, valid for “+,-” power source	0	3F
NOISE.SW	Noise test switch 0:OFF 1:ON	0	1
NOISE.COUNT	Test and confirm the noise counting value	31	255
SEARCH1	Automatic searching calculation 1, 0:quick 1:slow	0	1
SEARCH2	Automatic searching calculation 2, 0:quick 1:slow	0	1
NOISE	Test the noise comparison value	F	15
UCOM	Select input mode for test pattern from U-COM	0	7
CH SHADE	Fade in when change 0:OFF 1:ON	0	1
DSP POSITION	TV Station display position 0:right 1:left	0	1

Seldom used adjustment items 2

OSD	Descriptions	Recommend Data	Max
HVBSW	H/V Blanking on/OFF switch, 0:OFF 1:ON	0	1
C.TRP.Q	C-Trap Q, 0:low 1:high	0	1
AFTCH	AFT check, 0:check AFT for TV or AV, 1: only check AFT for TV	1	1
SEAUD	Automatic tuning, whether search signal downwards 0:search downwards 1:no	0	1
BYRGB	Black screen switch Y/RGB option 0:off Y 1:off RGB	0	1
UV.SW	UV SW 0:Cb/Cr 1:U/V	0	1
C.TRAP	C trap mode selection, 00:01 interlocking “video sw” 10 :off 11:on	0	3
YUV.DIS	YUV display status 0:YUV 1:DVB	0	1
TINTP	TINT polarity 0: Plus 1:Minus	1	1

Seldom used adjustment items 3

OSD	Descriptions	Recommend Data	Max
VFREQ	V.frequency setting without signal, 0:automatic, 1:313	1	1
OVMO	Over modulation switch 0:normal set 1:ON	0	1
AFT SENS.	AFT sensatory 0:wide(250hz) 1:normal(83hz)	0	1
NYBUSW	Nyquist Buzz reducer Switch, 0:ON, 1: OFF	1	1
SHARPF0	Select sharpness center frequency, 0:2.75MHz, 1:4MHz	0	1
VCOADJ	Whether adjust VC0 when change channel, 0:adjust VCO, 1:no	0	1
HSTOP	power on H STOP 0:H STOP=0, 1:H STOP=1	0	1
SYNC.SEP.	H. Sync. division degree, 0:40% 1:50%	1	1
SYNC.SLI.	Weak signal sync. Level, 0:standard 1:low	0	1
SYNC.SKEW	Test H.Sync. incline mode, 0:30% 1:50%	0	1

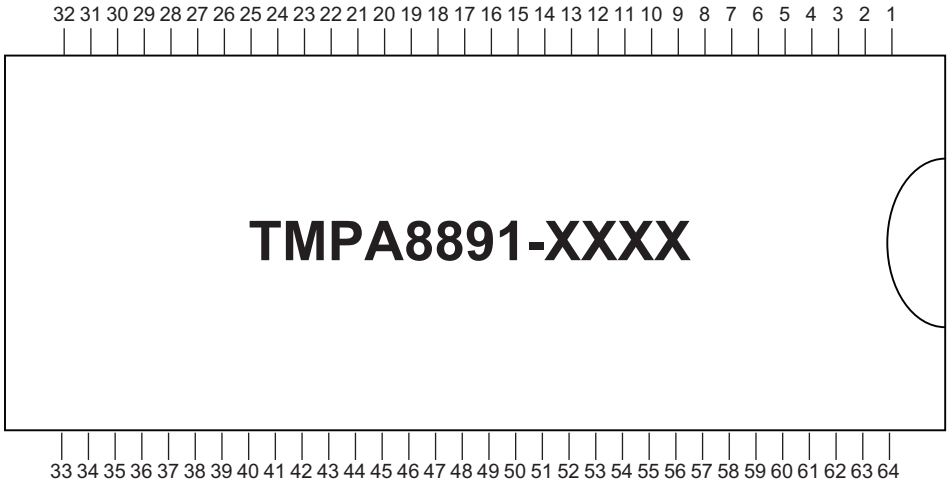
SECAM adjustment items

OSD	Descriptions	Recommend Data	Max
SECAM.GP	00:normal 01:+200ns 10:center 11:-200ns	0	1
SECAM.INT	secam inhibit swich 0:detecting 1:inhibit	0	1
SECAM.ID	SECAM sensatory 0:normal 1:low	1	1
SECAM.BEL.SW	sel secam bell filter bandwith 0: bell filter 1:boost mode	0	1
SECAM.ID.MOD	select secam ident mode 0:H ID 1:H+V ID	0	1
SECAM.BLACK.SW	select YS-SW mode 0:normal operation 1:secam black level alignment mode	0	1
SECAM.BELL	select secam bell filter Q 0:low 1:high	1	1

LOGO seting:

At AV mode, press remote figure key “2 4 8 3”, “6483”, “6568” to enter LOGO setting MENU, according to MENU to select item, press P+, P-, V+, V- key to set LOGO Parameters, after setting, press DISP key to exit.

8. IC'S FUNCTIONAL DESCRIPTION



8.1 TMPA889* FUNCTION: MAIN IC

PIN	DESCRIPTION	PIN	DESCRIPTION
1	U/V	22	EXT-AU1
2	L/H	23	C-in
3	KEY	24	Sin
4	GND	25	ACL
5	REST	26	TV-in
6/7	X-TAC	27	ABC-in
8	TEST	28	Audio-out1
9	5V	29	Audio-out2
10	Vss	30	TV-out
54	GND	31	SIF OUT
55	5V	32	EXT-AU2
56	AV SW	33	SIF in
57	SDA	34	DC NF
58	SOL	35	PIF•PLL
59	50/60HZ	36	IF-5V
60	VT	37	S-Reg
61	MUTE	38	AU OUT1
62	TVSYNC	39	IF AGC
63	RMT IN	40	IF GND
64	Power	41/42	IF in
11	TV GND	43	RF AGC
12	FBP-IN	44	Black Det
13	H-out	45	Monitor out
14	H-AFC	46	APC fil
15	V-SAW	47	YC VCC5V1
16	V-out	48	SYNC OUT
17	H-Vcc	49	DVCC—3.3V
18	TV GND	50	R out
19	Cb	51	G out
20	Y-IN	52	B out
21	Cr	53	GND

8.2 FSCQ-SERIES
FSCQ0765RT GREEN MODE FAIRCHILD POWER SWITCH (FPS™)

Features

- Optimized for Quasi-Resonant Converter (QRC)
- Advanced Burst-Mode Operation for under 1W Standby Power Consumption
- Pulse-by-Pulse Current Limit
- Over Load Protection (OLP) – Auto estart
- Over Voltage Protection (OVP) – Auto Restart
- Abnormal Over Current Protection (AOCP) – Latch
- Internal Thermal Shutdown (TSD) – Latch
- Under Voltage Lock Out (UVLO) with Hysteresis
- Low Startup Current (typical: 25μA)
- Internal High Voltage SenseFET
- Built-in Soft Start (20ms)
- Extended Quasi-Resonant Switching

Description

A Quasi-Resonant Converter (QRC) typically showslower EMI and higher power conversion efficiency com-pared to conventional hard-switched converter with afixed switching frequency. Therefore, a QRC is wellsuited for noise-sensitive applications, such as color TVand audio. Each product in the FSCQ-Series contains anintegrated Pulse Width Modulation (PWM) controller anda SenseFET, and is specifically designed for quasi-resonant off-line Switch Mode Power Supplies (SMPS)with minimal external components.

The PWM controllerincludes an integrated fixed frequency oscillator, under voltage lockout, leading edge blanking (LEB), optimized gatedriver, internal soft start, temperature-compensated precise current sources for a loop compensation, and selfprotection circuitry. Compared with a discrete MOSFET and PWM controller solution, the FSCQ-Series canreducetota l cost, component count, size, and weight, whilesimultaneously increasing efficiency, productivity, and sys-tem reliability. These devices provide a basic platform thatis well suited for cost-effective designs of quasi-resonantswitching flyback converters.

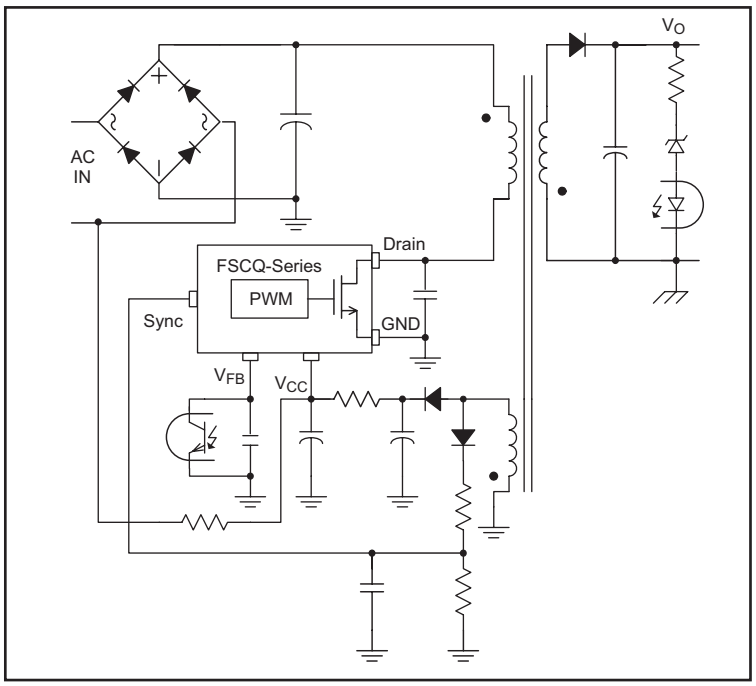
Maximum Output Power

Output Power Table[3]		
Product	230 VAC±15%[2]	85–265 VAC
	Open Frame[1]	Open Frame[1]
FSCQ0765RT	100W	85W

Notes:

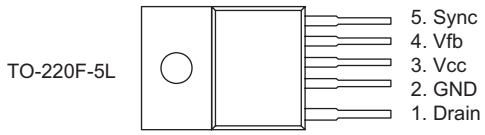
1. Maximum practical continuous power in an open frame design at 50°C ambient.
2. 230 VAC or 100/115 VAC with doubler.
3. The junction temperature can limit the maximum output power.

TYpical Circuit



Typical Flyback Application

Pin Configuration



Pin Configuration (Top View)

Pin Definitions

Pin Number	Pin Name	Pin Fuction Description
1	Drain	High voltage power SenseFET drain connection.
2	GND	This pin is the control ground and the SenseFET source.
3	V_{CC}	This pin is the positive supply input. This pin provides internal operating current for both start-up and steady-state operation.
4	Vfb	This pin is internally connected to the inverting input of the PWM comparator. The collector of an optocoupler is typically tied to this pin. For stable operation, a capacitor should be placed between this pin and GND. If the voltage of this pin reaches 7.5V, the over load protection triggers, which results in the FPS shutting down.
5	Sync	This pin is internally connected to the sync detect comparator for quasi-resonant switching. In normal quasi-resonant operation, the threshold of the sync comparator is 4.6V/2.6V. Whereas, the sync threshold is changed to 3.0V/1.8V in an extended quasi-resonant operation.

Notes:
1. Maximum practical continuous power in an open frame design at 50°C ambient.
2. 230 VAC or 100/115 VAC with doubler.
3. The junction temperature can limit the maximum output power.

Absolute Maximum Ratings
(T_A= 25°C, unless otherwise specified)

Parameter	Symbol		Value	Unit
Drain Pin Voltage	V_{DS}		650	V
Supply Voltage	V_{CC}		20	V
Analog Input Voltage Range	V_{sync}		-0.3 to 13V	V
	V_{FB}		-0.3 to V_{CC}	V
Drain Current Pulsed[4]	I_{DM}		15.2	A
Continuous Drain Current (T_C = 25°C) (T_C: Case Back Surface Temperature)	I_D		3.8	$A_{(rms)}$
Continuous Drain Current* (TDL= 25°C) (TDL: Drain Lead Temperature)	I_D*		7	$A_{(rms)}$
Continuous Drain Current (TC= 100°C)	I_D		2.4	$A_{(rms)}$
Single-Pulsed Avalanche Energy[5]	E_{AS}		570	mJ
Total Power Dissipation (Tc = 25°C with In nite Heat Sink)	P_D		45	W
TerutarepmeT noitcnuJ gnitarep	T_J		+150	°C
TerutarepmeT tneibmA gnitarep	T_A		-25 to +185	°C
TegnaR erutarepmeT egarot	T_{STG}		-55 to +150	°C
ESD Capability, HBM Model (All pins except Vfb)	-		(GND -Vfb =1.7KV)	KV
ESD Capability, Machine Model (All pins except Vfb)	-		(GND -Vfb =170V)	V

Notes:
4. Repetitive rating: pulse width limited by maximum junction temperature.
5. L = 15mH, starting Tj = 25°C, These parameters, although guaranteed at the design, are not tested in mass production.

Thermal Impedance
(T_A= 25°C, unless otherwise specied)

Parameter	Symbol		Value	Unit
Junction to Case Thermal Impedance	θ_{JC}	FSCQ0765RT	2.60	°C/W

Electrical Characteristics (SenseFET Part)
(T_A= 25°C, unless otherwise specified)

Parameter	Symbol		Condition	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}		V_{GS}= 0V, I_D= 250μA	650	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}		V_{DS}= 650V,V_{GS}= 0V	-	-	250	μA
Drain-Source ON-State Resistance	$R_{DS(ON)}$	FSCQ0765RT	V_{GS}= 10V, I_D=1A	-	1.4	1.6	Ω
Input Capacitance	C_{ISS}	FSCQ0765RT	V_{GS}= 0V, V_{DS}= 25V,	-	1415	-	pF
Output Capacitance	C_{OSS}	FSCQ0765RT	V_{GS}= 0V, V_{DS}= 25V,	-	100	-	pF

Electrical Characteristics (Continued)
(TA= 25°C unless otherwise specified)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Control Section						
Switching Frequency	F_{OSC}	V_{FB}= 5V, V_{CC}= 18V	18	20	22	KHz
Switching Frequency Variation[7]	ΔF_{OSC}	-25°C≤ T_A≤ 85°C	0	±5	±10	%
Feedback Source Current	I_{FB}	V_{FB}= 0.8V, V_{CC}= 18V	0.5	0.65	0.8	mA
Maximum Duty Cycle	D_{MAX}	V_{FB}= 5V, V_{CC}= 18V	92	95	98	%
Minimum Duty Cycle	D_{MIN}	V_{FB}= 0V, V_{CC}= 18V	-	0	-	%
UVLO Threshold Voltage	V_{START}	V_{FB} =1V	14	15	16	V
	V_{STOP}		8	9	10	
Soft Start Time[6]	T_{SS}		18	20	22	ms
Burst Mode Section						
Burst Mode Enable Feedback Voltage	V_{BEN}		0.25	0.40	0.55	V
VBurst Mode Feedback Source Current	I_{BFB}	V_{FB} =0V	60	100	140	μA
Burst Mode Switching Time	T_{BS}	V_{FB}= 0.9V, Duty=50%	1.2	1.4	1.6	ms
Burst Mode Hold Time	T_{BH}	V_{FB} =0.9V → 0V	1.2	1.4	1.6	ms
Protection Section						
Shutdown Feedback Voltage	V_{SD}	V_{CC}= 18V	70	7.5	8.0	V
Shutdown Delay CurrentI	I_{DELAY}	V_{FB}= 5V, V_{CC}= 18V	4	5	6	μA
Over Voltage Protection	V_{OVP}	V_{FB}= 3V	11	12	1.3	V
Over Current Latch Voltage[6]	V_{OCL}	V_{CC}= 18V	0.9	1.0	1.1	V
Thermal Shutdown Temp[7]	T_{SD}		140	-	-	°C

Notes:
6. These parameters, although guaranteed, are tested only in EDS (wafer test) process.
7. These parameters, although guaranteed at the design, are not tested in mass production.

Electrical Characteristics (Continued)
(T_A= 25°C, unless otherwise specified)

Parameter	Symbol		Condition	Min.	Typ.	Max.	Unit
Sync Section							
Sync Threshold in Normal QR (H)	V_{SH1}		V_{CC}= 18V, V_{FB}= 5V	4.2	4.6	5.0	V
Sync Threshold in Normal QR (L)	V_{SL1}			2.3	2.6	2.9	V
Sync Threshold in Extended QR (H)	V_{SH2}			2.7	3.0	3.3	V
Sync Threshold in Extended QR (L)	V_{SL2}			1.6	1.8	2.0	V
Extended QR Enable Frequency	F_{SYH}			-	90	-	KHz
Extended QR Disable Frequency	F_{SYL}			-	45	-	KHz
Total Device Section							
Operating Supply Current[9]							
- In Normal Operation	I_{OP}	FSCQ0765RT	V_{FB} = 5V	-	4	6	mA
- In Burst Mode (Non-switching)	I_{OB}		V_{FB} =GND	-	0.25	0.50	mA
Startup Current	I_{START}		V_{CC}=V_{START} - 0.1V	-	25	50	μA
Sustain Latch Current[11]	I_{SN}		V_{CC}=V_{STOP} - 0.1V	-	50	100	μA
Current Sense Section							
Maximum Current Limit[10]	I_{LIM}	FSCQ0765RT	V_{CC}= 18V, V_{FB}= 5V	4.4	5	5.6	A
Burst Peak Current	$I_{BUR(pk)}$	FSCQ0765RT	V_{CC}= 18V, V_{FB}= Pulse	0.65	0.9	1.15	A

8.3 CD7522CS DUAL 5W BTL AUDIO POWER AMPLIFIER (ONLY FOR AV STEREO)

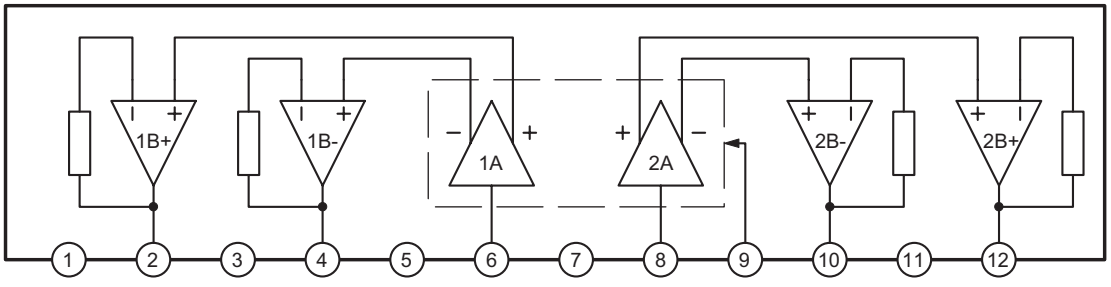
Overview

CD7522CS is an audio power amplifier IC for the stereo system. In the BTL (balanced transformerless) method, fewer external parts and easier design for applications are required.

Features

- 5W output (8Ω) with supply voltage of 12 V
- On-chip standby function
- On-chip volume function
- Package: FSIP12

Block Diagram and Pin Descriptions
Block Diagram



Pin Descriptions

Pin Number	Pin Name	Pin Fuction Description
1	Drain	High voltage power SenseFET drain connection.
2	GND	This pin is the control ground and the SenseFET source.
3	Vcc	This pin is the positive supply input. This pin provides internal operating current for both start-up and steady-state operation.
4	Vfb	This pin is internally connected to the inverting input of the PWM comparator. The collector of an optocoupler is typically tied to this pin. For stable operation, a capacitor should be placed between this pin and GND. If the voltage of this pin reaches 7.5V, the over load protection triggers, which results in the FPS shutting down.
5	Sync	This pin is internally connected to the sync detect comparator for quasi-resonant switching. In normal quasi-resonant operation, the threshold of the sync comparator is 4.6V/2.6V. Whereas, the sync threshold is changed to 3.0V/1.8V in an extended quasi-resonant operation.

Electrical Characteristics

Absolute Maximum Ratings: Except for the operating ambient temperature and storage temperature, all ratings are for Tamb = 25°C.

Parameter	Symbol	Condition	Ratings	Unit
Supply voltage	V_{cc}	V_{in} = 0	14	V
Supply Current	I_{cc}		2	A
Power Dissipation	P_D	T_a = 70°C	1.92	W
Operating Ambient Temperature	T_{amb}		-25 ~ 70	°C
Storage Temperature	T_{stg}		-55 ~ 150	°C

Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	Vcc	3.5 ~ 13.5	V

Electrical Characteristics at Vcc= 8.0 V, RL = 8Ω, f = 1 KHz, Tamb = 25°C ± 2°C

Parameter	Symbol	Condition	Ratings			Unit
			Min	Typ.	Max.	
Quiescent Current	I_{CCQ}	V_{in} = 0mV, V_{VOL} = 0V		45	100	mA
Standby Current	I_{STB}	V_{in} = 0mV, V_{VOL} = 0V		1	10	μA
Output Noise Voltage	V_{NO}	R_g = 10KΩ, V_{VOL} = 0V		0.10	0.4	mVrms
Voltage Gain	A_V	P_O = 0.5W, V_{VOL} = 1.25V	31	33	35	dB
Total Harmonic Distortion	THD	P_O = 0.5W, V_{VOL} = 1.25V		0.10	0.5	%
Maximum Output Power	P_O	THD = 10%, V_{VOL} = 1.25V	2.4	3.0		W
		THD = 10%, V_{VOL} = 9.5V	3.2	4.0		
		THD = 10%, V_{VOL} = 12V	4.9	6.1		
Ripple Rejection Ratio	RR	R_g = 10KΩ, V_{VOL} = 0V	30	50		dB
		V_R = 0.5Vrms, f_R = 120Hz				
Output Offset Voltage	V_{OF}	R_g = 10KΩ, V_{VOL} = 0V	-250	0	250	mV
Volume Attenuation Ratio	Att	P_O = 0.5W, V_{VOL} = 0V	70	85		dB
Channel Balance 1	CB1	P_O = 0.5W, V_{VOL} = 1.25V	-1	0	1	dB
Channel Balance 2	CB2	P_O = 0.5W, V_{VOL} = 0.6V	-3	0	3	dB
Middle Voltage Gain	G_{VM}	P_O = 0.5W, V_{VOL} = 0.6V	20.5	23.5	26.5	dB
Channel Crosstalk	CT	P_O = 0.5W, V_{VOL} = 1.25V	40	55		dB
Standby Pin Current	I_{STB2}	V_{in} = 0mV, V_{STB} = 3V			25	μA
Volume Pin Current	I_{VOL}	V_{in} = 0mV, V_{VOL} = 3V	-12			μA

8.4 CD7523CS 3W BTL AUDIO POWER AMPLIFIER (ONLY FOR AV MONO)

Overview

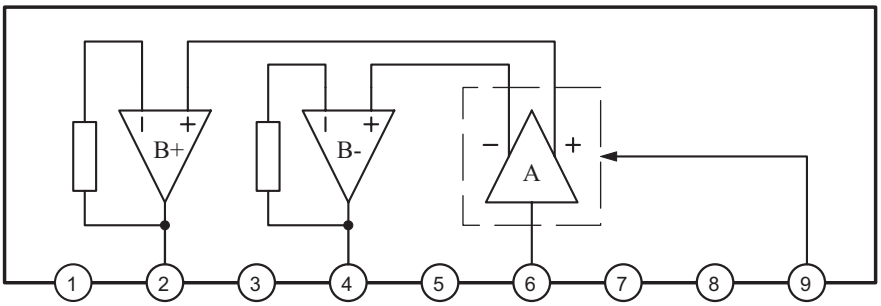
CD7523CS is an audio power amplifier IC. In the BTL (balanced transformerless) method, fewer external parts and easier design for applications are required.

Features

- 3W output (8Ω) with supply voltage of 8V
- On-chip standby function
- On-chip volume function
- Package: FSIP9

Block Diagram and Pin Descriptions

Block Diagram



Pin Descriptions

Pin No.	Symbol	Descriptions	Pin No.	Symbol	Descriptions
1	Vcc	Supply voltage	6	IN1	Ch.1 - input
2	OUT 1+	Ch.1 + output	7	GND	Ground (input)
3	GND 1	Ground (output ch.1)	8	NC	NC.
4	OUT 1-	Ch.1 - output	9	VOL	Volume (max. volume if this pin is open)
5	ST-BY	standby (standby state if this pin is open)			

Electrical Characteristics

Absolute Maximum Ratings: Except for the operating ambient temperature and storage temperature, all ratings are for Tamb = 25°C.

Parameter	Symbol	Condition	Ratings	Unit
Supply voltage	V_{CC}	V_{in} = 0	14	V
Supply Current	I_{CC}		1	A
Power Dissipation	P_D	T_a = 70°C	1.22	W
Operating Ambient Temperature	T_{amb}		-25 ~ 70	°C
Storage Temperature	T_{stg}		-55 ~ 150	°C

Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	Vcc	3.5 ~ 13.5	V

Electrical Characteristics at Vcc= 8.0 V, RL = 8Ω, f = 1 KHz, Tamb = 25°C ± 2°C

Parameter	Symbol	Condition	Ratings			Unit
			Min	Typ.	Max.	
Quiescent Current	I_{CCQ}	V_{in} = 0mV, V_{VOL} = 0V		25	60	mA
Standby Current	I_{STB}	V_{in} = 0mV, V_{VOL} = 0V		1	10	µA
Output Noise Voltage	V_{NO}	R_g = 10KΩ, V_{VOL} = 0V		0.10	0.4	mVrms
Voltage Gain	A_V	P_O = 0.5W, V_{VOL} = 1.25V	31	33	35	dB
Total Harmonic Distortion	THD	P_O = 0.5W, V_{VOL} = 1.25V		0.10	0.5	%
Maximum Output Power	P_O	THD = 10%, V_{VOL} = 1.25V	2.4	3.0		W
		THD = 10%, V_{VOL} = 9.5V	3.2	4.0		
		THD = 10%, V_{VOL} = 12V	4.9	6.1		
Ripple Rejection Ratio	RR	R_g = 10KΩ, V_{VOL} = 0V	30	50		dB
		V_R = 0.5Vrms, f_R = 120Hz				
Output Offset Voltage	V_{OF}	R_g = 10KΩ, V_{VOL} = 0V	-250	0	250	mV
Volume Attenuation Ratio	Att	P_O = 0.5W, V_{VOL} = 0V	70	85		dB
Middle Voltage Gain	G_{VM}	P_O = 0.5W, V_{VOL} = 0.6V	20.5	23.5	26.5	dB
Standby Pin Current	I_{STB2}	V_{in} = 0mV, V_{STB} = 3V			25	µA
Volume Pin Current	I_{VOL}	V_{in} = 0mV, V_{VOL} = 3V	-12			µA

8.5 LA78040 - TV and CRT Display Vertical Output IC with Bus Control Support (only for 14"-21" PF)

Overview

The LA78040 is a vertical deflection output IC for high image quality TV and CRT displays that supports the use of a bus control system signal-processing IC. The sawtooth waveform from the bus control system signal-processing IC can directly drive the deflection yoke (including the DC component).

Functions

- Built-in pump-up circuit for low power dissipation.
- Vertical output circuit.
- Thermal protection circuit.

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Pump-up block supply voltage	+B2 max		34	V
Output block supply voltage	+B6 max		70	V
Allowable power dissipation	Pd max	Mounted on an arbitrarily large heat sink.	9	W
Deflection output current	I5 max		-1.5 to +1.5	Ap-o
Thermal resistance	θj-c		3	°C/W
Operating temperature	Topr		-20 to +85	°C
Stroage temperature	Tstg		-40 to +150	°C

Operating Conditions at Ta = 25°C

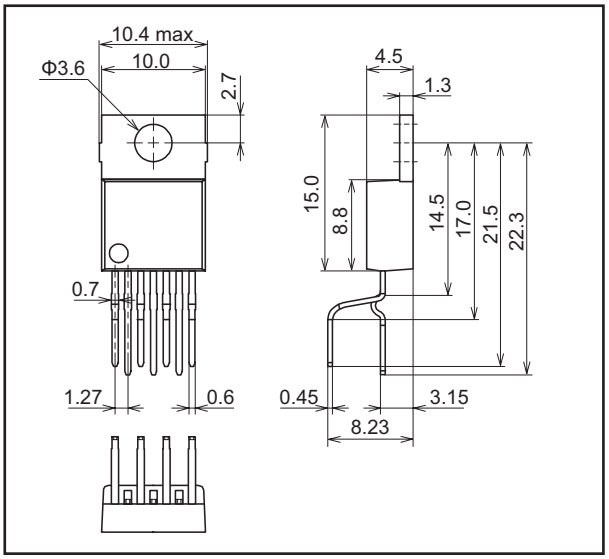
Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	+B2		24	V
Operating supply voltage range	+B2op		-16 to 33	V
Deflection output current	I5p-p	Mounted on an arbitrarily large heat sink.	To 1.8	Ap-p

Operating Characteristicsat Ta = 25°C, +B2 = 24V

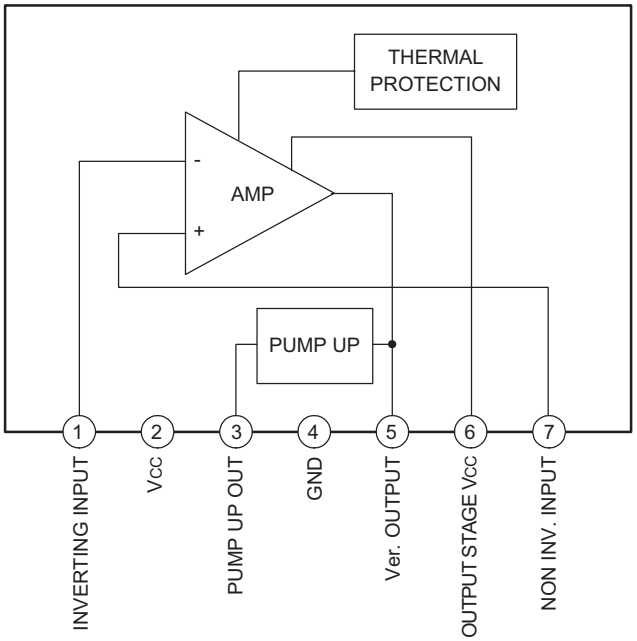
Parameter	Symbol	Condition	Ratings			Unit
			Min	Typ.	Max.	
Deflection output saturation voltage (lower)	+Vsat5-4	I5 = 0.9A			1.3	V
Deflection output saturation voltage (upper)	+Vsat6-5	I5 = -0.9A			3.2	V
Pump-up charge saturation voltage	+Vsat3-4	I3 = 20mA			1.8	V
Pump-up discharge saturation voltage	+Vsat2-3	I3 = 0.9A			3.0	V
Idl current	Idl		20		50	mA
Midpoint voltage	Vmid		11.0	12.0	13.0	V

Notes:
Current flowing into the IC is positive (+) and current flowing out is negative (-).

Package Dimensions
unit : mm



Block Diagram



8.6 STV 8172A VERTICAL DEFLECTION BOOSTERFOR 3-APPTV/MONITOR APPLICATIONS (ONLY FOR 21" SLIM) WITH 70-V FLYBACK GENERATOR

Main Features

- Power Amplifier
- Flyback Generator
- Stand-by Control
- Output Current up to 3App
- Thermal Protection

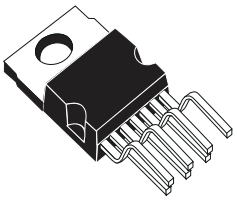
Description

The STV8172A is a vertical deflection booster designed for TV and monitor applications.

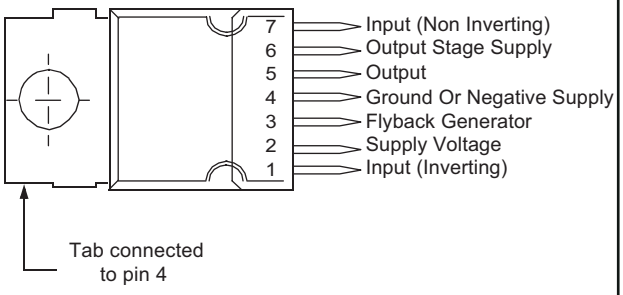
This device, supplied with up to 35V, provides up to 3App output current to drive the vertical deflection yoke.

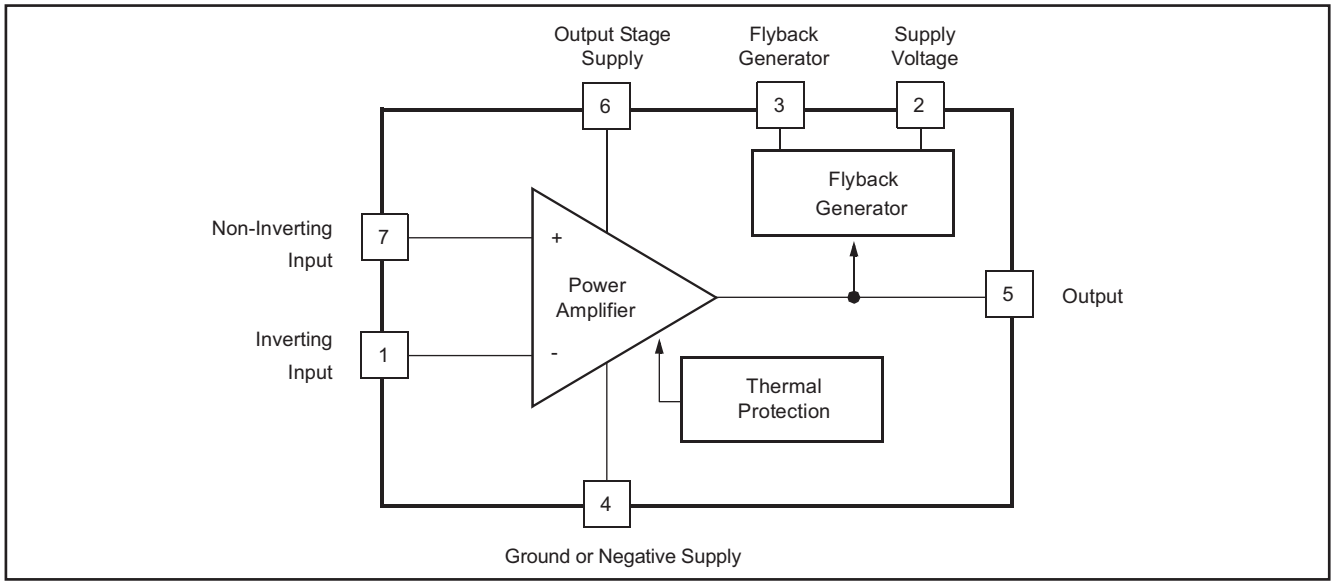
The internal flyback generator delivers flyback voltages up to 75V.

In double-supply applications, a stand-by state will be reached by stopping the (+) supply alone.



HEPTAWATT
(Plastic Package)
ORDER CODE: STV8172A





Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
Voltage			
V_S	Supply Voltage (pin 2) - Note 1 and Note 2	40	V
V_5, V_6	Flyback Peak Voltage - Note2	75	V
V_3	Voltage at Pin 3 - Note2, Note3 and Note6	-0.4 to (V_S + 3)	V
V_1, V_7	Amplifier Input Voltage - Note2, Note6 and Note7	-0.4 to (V_S + 2) + 40	V
Current			
I_0(1)	Output Peak Current at f = 50 to 200 Hz, t ≤ 10µs - Note4	±5	A
I_0(2)	Output Peak Current non-repetitive - Note5	±2	A
I_3 Sink	Sink Current, t<1ms - Note3	2	A
I_3 Source	Source Current, t <1ms	2	A
I_3	Flyback pulse current at f=50 to 200Hz, t≤10µs - Note4	±5	A
ESD Susceptibility			
ESD1	Human body model (100pF discharged through 1.5k)	2	KV
ESD2	ESD2EIAJ Standard (200pF discharged through 0)	300	V
Temperature			
TS	Storage Temperature	-40 to 150	°C
TJ	Junction Temperature	+150	°C

Note:
1. Usually the flyback voltage is slightly more than 2 x VS. This must be taken into consideration when settingVS.
2. Versus pin 4.
3. V3 is higher than VS during the first half of the flyback pulse.
4. Such repetitive output peak currents are usually observed just before and after the flyback pulse.
5. This non-repetitive output peak current can be observed, for example, during the Switch-On/Switch-Off phases. This peak current is acceptable providing the SOA is respected (Figure8 and Figure9).
6. All pins have a reverse diode towards pin 4, these diodes should never be forward-biased.
7. Input voltages must not exceed the lower value of either VS + 2 or 40 volts.

Thermal Data

Symbol	Parameter	Value	Unit
R_{thjc}	Junction-to-Case Thermal Resistance	3	°C/W
T_T	Temperature for Thermal Shotdown	150	°C
T_J	Recommended Max. Junction Temperature	120	°C

Electrical Characteristics
(VS = 34 V, TAMB = 25°C, unless otherwise specified)

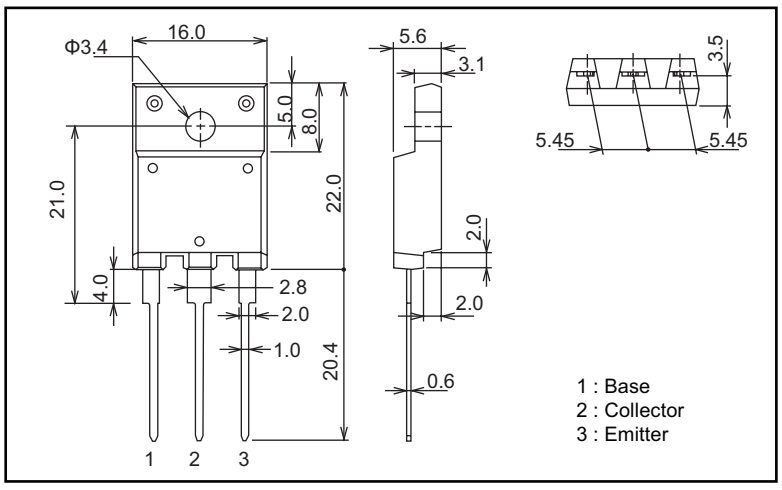
Symbol	Parameter	Text Conditions	Min.	Typ.	Max.	Unit	Fig.
Supply							
V_S	Operating Supply Voltage Range (V2-V4)	Note 8	10		35	V	
I_2	Pin 2 Quiescent Current	I_3 = 0, I_5 = 0		5	20	mA	1
I_6	Pin 6 Quiescent Current	I_3 = 0, I_5 = 0, V_6 = 35v	8	19	50	mA	1
Input							
I_1	Input Bias Current	V_1 = 1V, V_7 = 22V		-0.6	1.5	µA	1
I_7	Input Bias Current	V_1 = 2.2V, V_7 = 1V		-0.6	-1.5	µA	
V_{IR}	Operating Input Voltage Range		0		V_S-2	V	
V_{I0}	Offset Voltage			2		mA	
$V_{I0/dt}$	Offset Drift Versus Temperature			10		µV/°C	
Output							
I_0	Operating Peak Output Current	0°<Tcase <125°C			±1.5	A	
V_{5L}	Output Saturation Voltage to pin 4	I_5 = 1.5A		1	1.7	V	3
V_{5H}	Output Saturation Voltage to pin 6	I_5 = 1.5A		1.8	2.3	V	2
Stand-by							
V_{5STBY}	Output Voltage in Stand-by	V_1 = V_7 = V_S = 0 See Note 9	V_S - 2			V	
Miscellaneous							
G	Voltage Gain		80			dB	
V_{D5-6}	Diode Forward Voltage Between pins 5-6	I_5 = 1.5A		1.8	2.3	V	
V_{D3-2}	Diode Forward Voltage Between pins 3-2	I_3 = 1.5A		1.6	2.2	V	
V_{3SL}	Saturation Voltage on pin 3	I_3 = 20mA		0.4	1	V	3
V_{3SH}	Ssturation Voltage to pin 2 (2nd part of flyback)	I_3 = -1.5A		2.1	2.8	V	

Note:
8. In normal applications, the peak flyback voltage is slightly greater than 2 x (VS - V4). Therefore, (VS- V4) = 35V is not allowed without special circuitry.
9. Refer to Figure 4, Stand-by condition.

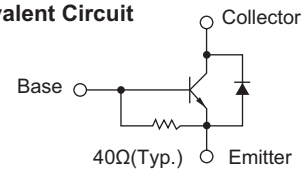
8.7 2SD2499 HORIZONTAL DEFLECTION OUTPUT FOR COLOR TV (ONLY FOR 14”-21” PF)

High Voltage : VCBO = 1500 V
Low Saturation Voltage : VCE (sat) = 5 V (Max.)
High Speed : tf = 0.3 µs (Typ.)
Bult-in Damper Type
Collector Metal (Fin) is Fully Covered with Mold Resin.

Package Dimensions
unit:mm



Equivalent Circuit



Maximum Ratings (Tc = 25°C)

Characterstic		Symbol	Rating	Unit
Collector-Base Voltage		V_{CBO}	1500	V
Collector-Emitter Voltage		V_{CEO}	600	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	6	A
	Pulse	I_{CP}	12	
Base Current		I_B	3	A
Collector Power Dissipation		P_C	50	W
Junction Temperature		T_j	150	°C
Storage Temerature Range		T_{stg}	-55 ~ 150	°C

Electrical Characteristics (Tc = 25°C)

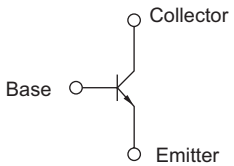
Parameter	Symbol		Condition	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}		V_{GS}= 0V, I_D= 250μA	650	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}		V_{DS}= 650V,V_{GS}= 0V	-	-	250	μA
Drain-Source ON-State Resistance	$R_{DS(ON)}$	FSCQ0765RT	V_{GS}= 10V, I_D=1A	-	1.4	1.6	Ω
Input Capacitance	C_{ISS}	FSCQ0765RT	V_{GS}= 0V, V_{DS}= 25V,	-	1415	-	pF
Output Capacitance	C_{OSS}	FSCQ0765RT	V_{GS}= 0V, V_{DS}= 25V,	-	100	-	pF

8.8 2SC5299 ULTRAHIGH-DEFINITION CRT DISPLAY HORIZONTAL DEFLECTION OUTPUT APPLICATIONS (ONLY FOR 21" SLIM, 29" SF/PF/ SLIM)

Features

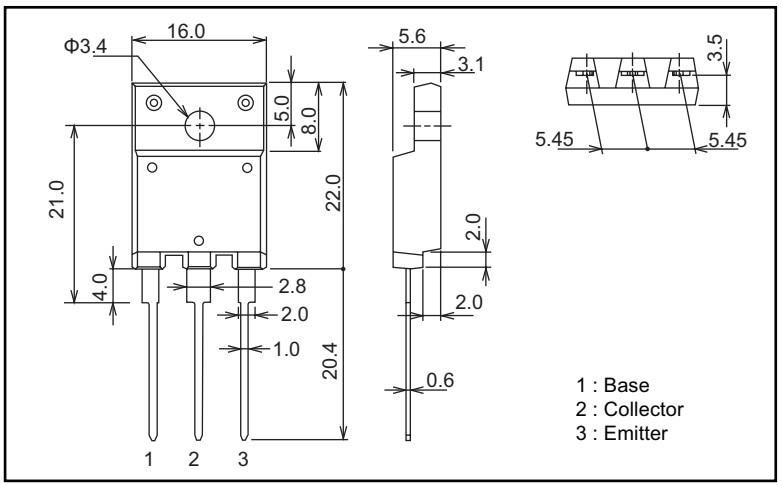
- High speed : tf=100ns typ.
- High breakdown voltage : VCBO=1500V.
- High reliability (Adoption of HVP process).
- Adoption of MBIT process.

Equivalent Circuit



Package Dimensions

unit:mm



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		1500	V
Collector-to-Emitter Voltage	V_{CEO}		800	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		10	A
Collector current (Pulse)	I_{CP}		25	A
Collector Dissipation	P_C		3.0	W
		Tc=25˚C	70	W
Junction Temperature	T_j		150	˚C
Storage Temperature	T_{stg}		-55 to +150	˚C

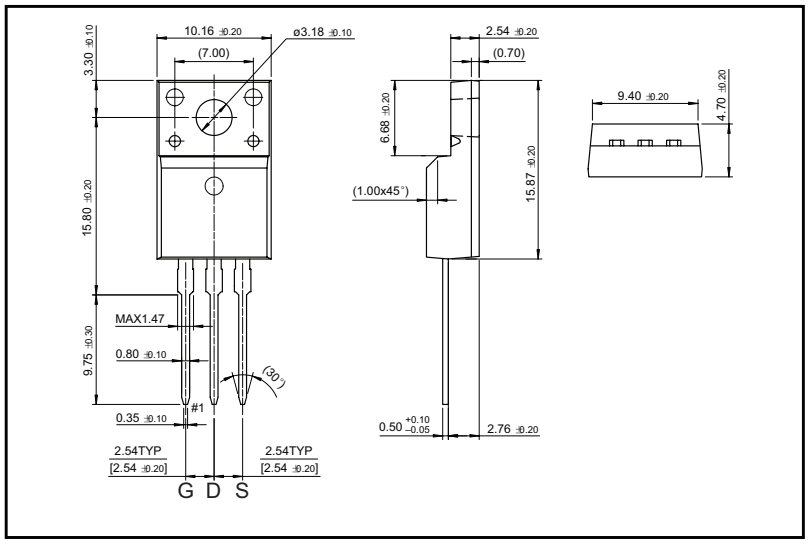
Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Condition	Ratings			Unit
			Min	Typ.	Max.	
Collector Cutoff Current	I_{CBO}	V_{CB} = 800V, I_E = 0			1.0	μA
	I_{CES}	V_{CE} = 1500V, R_{BE} = 0			1.0	mA
Collector-to-Emitter Sastain Voltage	$V_{CEO(sus)}$	I_C = 100mA, I_B = 0	800			V
Emitter Cutoff Current	I_{EBO}	V_{EB} = 4V, I_C = 0			1.0	mA
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 8A, I_B = 2A			5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 8A, I_B = 2A			1.5	V
DC Current Gain	h_{FE1}	V_{CE} = 5V, I_C = 1A	20		30	
	h_{FE2}	V_{CE} = 5V, I_C = 8A	4		7	
Storage Time	t_{stg}	I_C = 6A, I_{B1} = 1.2A, I_{B2} = 2.4A			3.0	μS
Fall Times	t_f	I_C = 6A, I_{B1} = 1.2A, I_{B2} = 2.4A		0.1	0.2	μS

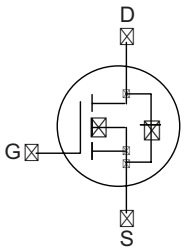
8.9 FQPF10N20C (ONLY FOR 21" SLIM, 29" SF/PF/ SLIM)
200V N-CHANNEL MOSFET

Package Dimensions

unit:mm



Equivalent Circuit



Absolute Maximum Ratings
Tc = 25°C unless otherwise noted

Characterstic	Symbol	FQPF10N20C	Unit
Drain-Source Voltage	V_{DSS}	200	V
Drain Current -Continuous (Tc = 25°C)	I_D	9.5*	A
-Continuous (Tc = 25°C)		6.0*	A
Drain Current -Pulsed (Note 1)	I_{DM}	38*	A
Gate-Source Voltage	V_{GSS}	±30	V
Single Pulsed Avalanche Energy (Note 2)	E_{AS}	210	mJ
Avalanche Current (Note 1)	I_{AR}	9.5	A
Repeltitive Avalanche Energy (Note 1)	E_{AR}	7.2	mJ
Peak Diode Recovery dv/dt (Note 3)	dv/dt	5.5	V/ns
Power Dissipation (Tc = 25°C)	P_D	38	W
-Derate above 25°C		0.3	W/°C
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	300	°C

* Drain current limited by maximum junction temperature.

Thermal Characteristics

Characterstic	Symbol	FQPF10N20C	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.33	°C/W
Thermal Resistance, Case-to-Sink Typ.	$R_{\theta JS}$	-	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W

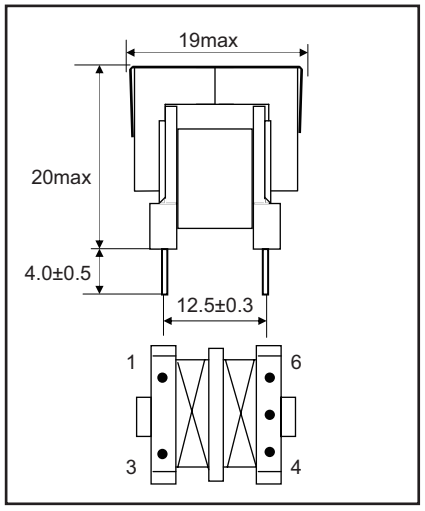
Electrical Characteristics
Tc = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Off Characteristice						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	200	--	--	V
ΔBV_{DSS} / ΔT_J	Breakdown Voltage Temperature Coefficient	I_D = 250 μA, Referenced to 25°C	--	0.28	--	V/°C
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 200 V, V_{GS} = 0 V	--	--	10	μA
		V_{DS} = 160 V, T_C = 125°C	--	--	100	μA
I_{GSSF}	Gate-Body Leakage Current, Forward	V_{GS} = 30 V, V_{DS} = 0 V	--	--	100	nA
I_{GSSR}	Gate-Body Leakage Current, Reverse	V_{GS} = -30 V, V_{DS} = 0 V	--	--	-100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2.0	--	4.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS} = 10 V, I_D = 4.75 V	--	0.29	0.36	Ω
g_{FS}	Forward Transconductance	V_{GS} = 40 V, I_D = 4.75 V (Note 4)	--	5.5	--	S
Dynamic Characteristics						
C_{jss}	Input Capacitance	V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0 MHz	--	395	510	pF
C_{oss}	Output Capacitance		--	97	125	pF
C_{rss}	Reverse Transfer Capacitance		--	40.5	53	pF

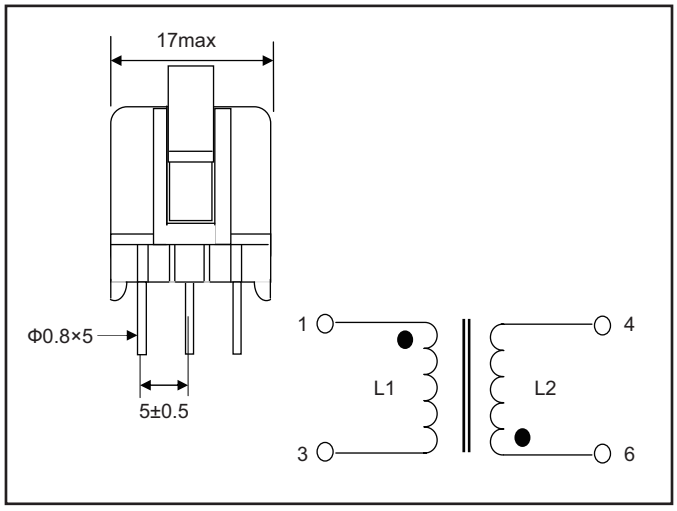
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 100 V, I_D = 9.5 V,	--	11	30	ns
t_r	Turn-On Rise Time	R_G = 25 Ω	--	92	190	ns
$t_{d(off)}$	Turn-Off Delay Time		--	70	150	ns
t_f	Turn-Off Fall Time	(Note 4, 5)	--	72	160	ns
Q_g	Total Gate Charge	V_{DS} = 160 V, I_D = 9.5 V,	--	20	26	nC
Q_{gs}	Gate-Source Charge	V_{GS} = 10 V	--	3.1	--	nC
Q_{gd}	Gate-Drain Charge	(Note 4, 5)	--	10.25	--	nC
Drain-Source Diode Characteristics and Maximum Ratings						
I_{SM}	Maximum Continuous Drain-Source Diode Forward Current		--	--	9.5	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	38	A
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS} = 0 V, I_S = 9.5 A	--	--	1.5	V
trr	Reverse Recovery Time	V_{GS} = 0 V, I_S = 9.5 V,	--	158	--	ns
Qrr	Reverse Recovery Charge	dIF / dt = 100A/μs (Note 4)	--	0.97	--	μC

Note:
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L = 3.5mH, I_{AS} = 9.5A, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25°C
3. I_{SD} ≤ 9.5A, di/dt ≤ 300A/μs, V_{DD} ≤ BVDSS, Starting T_J = 25°C
4. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%
5. Essentially independent of operating temperature

8.10 LINE DRIVE TRANSFORMER TD0004 (ONLY FOR 14" - 21" PF)



Configuration & Dimensions (Unit:mm)

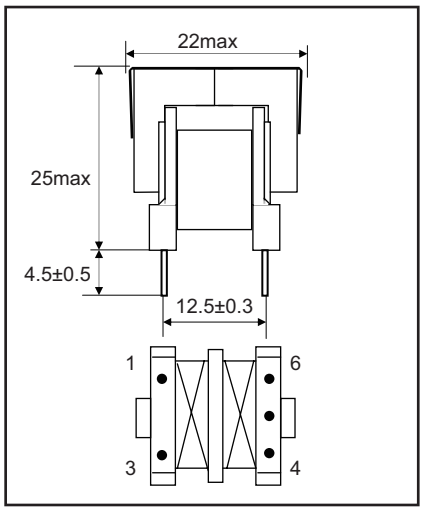


Electric Schematic

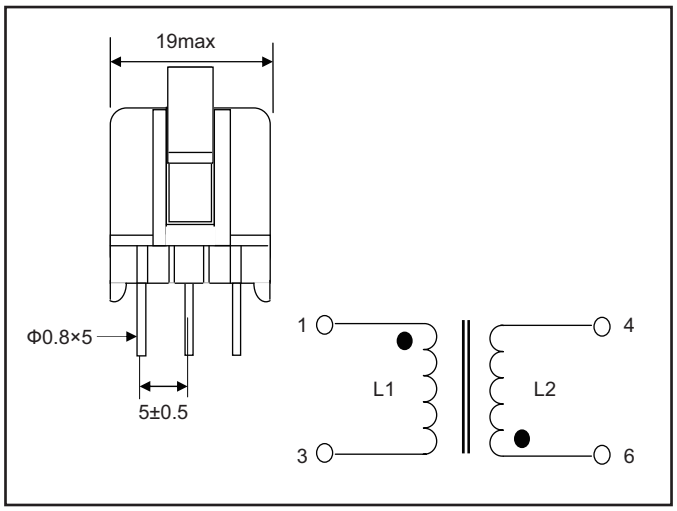
Electrical Sharacterstics

	Paraminal	Specification	Test Condition
1	Inductance	L_{1-3} = 64.1mH ± 20%	WK4225 LCR f = 1KHz
		L_{4-6} = 410μH ± 20%	
2	Leakage Inductance	L_{S4-6} = 9.6μH ± 30%	WK4225 LCR f = 1KHz Test Pin4.6, short Pin1.3
3	DC Resistance	R_{1-3} ≤ 35Ω	CH301A or Equivalent T=20°C
		R_{4-6} ≤ 0.2Ω	
4	Hi-pot	No Abnormality	L1-L2, L1.L2-Core: AC0.5KV/1min 1mA
5	Insulation Resistance	≥100MΩ	L1-L2, L1.L2-Core: DC500V
6	Polarity	Correct	According to Electric Schematic

8.11 LINE DRIVE TRANSFORMER TD0042 (ONLY FOR 21" SLIM, 29" SF / PF / SLIM)



Configuration & Dimensions (Unit:mm)

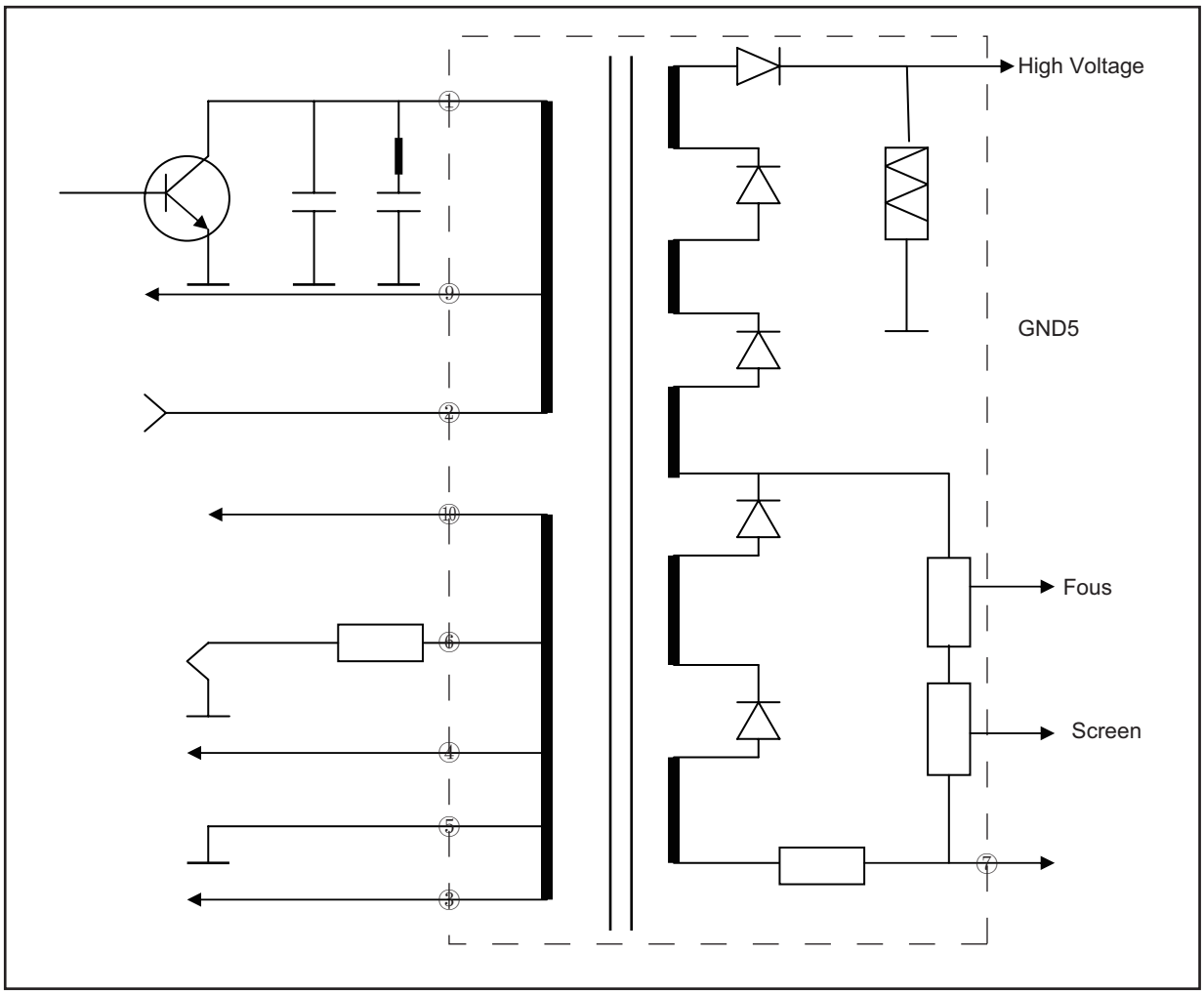


Electric Schematic

Electrical Sharacterstics

	Paraminal	Specification	Test Condition
1	Inductance	L_{1-3} = 30mH ± 20%	WK4225 LCR f = 1KHz
		L_{4-6} = 210μH ± 20%	
2	Leakage Inductance	L_{S4-6} = 5.0μH ± 30%	WK4225 LCR f = 1KHz Test Pin4.6, short Pin1.3
3	DC Resistance	R_{1-3} ≤ 10.2Ω	CH301A or Equivalent T=20°C
		R_{4-6} ≤ 0.2Ω	
4	Hi-pot	No Abnormality	L1-L2, L1.L2-Core: AC0.5KV/1min 1mA
5	Insulation Resistance	≥100MΩ	L1-L2, L1.L2-Core: DC500V
6	Polarity	Correct	According to Electric Schematic

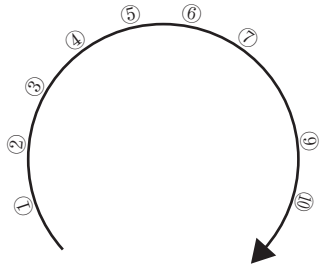
8.12 FLY BACK TRANSFORMER BST9XX0124E-X / T9XX0040J-R



Performance Characteristics JT9XX0124-X

Items	Tolerance	Std.Value	Unit
High Voltage	Std ± 0.5 (At Ia = 0.9ma)	20.0	KVdc
Regulation	Std ± 0.5 (At Ia = 0~0.9ma)	≤ 1.6	KVdc
Focus Voltage	Vf Max. :≥ 6.6 Vf Min. :≤ 3.6		KVdc
Screen Volatge	Vs Max. :≥ 800 Vs Min. :≤ 250		Vdc
Collector	Std ± 5%	950 + 50max	Vp-p
+B	Std ± 0.5	110	Vdc
Input Current	Std + 50	400 Max	mA
Retrace Time	STD ± 0.3	11.60	us
Heater Line	Std ± 0.3	6.3	Vrms
Video Line	Std ± 5%	185	Vdc
Afc Line	Std ± 5%	150	Vp-p
E-13v Line	Std ± 0.5	-13.5	Vdc
E13v Line	Std ± 0.5	13.5	Vdc
Ringing Ratio	≤ 5or Less	4or Less	%

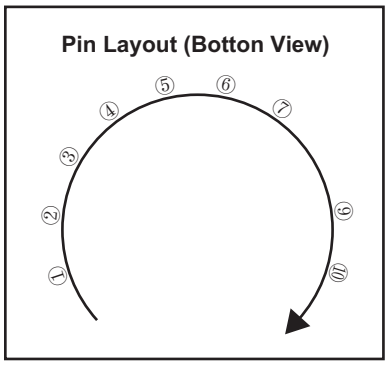
Pin Layout (Botton View)



① Collector
② +B
③ E13.5V
④ E -13.5V
⑤ GND
⑥ Heater Voltage
⑦ ABL
⑨ Video AMP Voltage
⑩ AFC Voltage

Performance Characteristics T9XX0040J-R

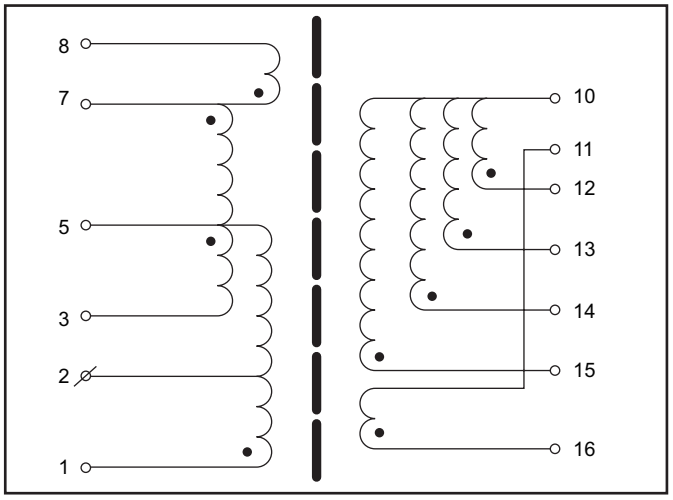
Items	Tolerance	Std.Value	Unit
High Voltage	Std ± 0.5 (At Ia = 1.0ma)	26 ± 0.5	KVdc
Regulation	Std ± 0.5 (At Ia = 0~1.0ma)	≤ 1.96	KVdc
Focus Voltage	Vf Max. :≥ 9.0 Vf Min. :≤ 5.5		KVdc
Screen Volatge	Vs Max. :≥ 900 Vs Min. :≤ 300		Vdc
Collector	Std ± 5%	1050 + 50max	Vp-p
+B	Std ± 0.5	110	Vdc
Input Current	Std + 50	550 Max	mA
Retrace Time	STD ± 0.3	11.1	us
Heater Line	Std ± 0.3	6.3	Vrms
Video Line	Std ± 5%	185	Vdc
Afc Line	Std ± 5%	150	Vp-p
E-13v Line	Std ± 0.5	-16.0	Vdc
E13v Line	Std ± 0.5	16.0	Vdc
Ringing Ratio	≤ 5or Less	4or Less	%



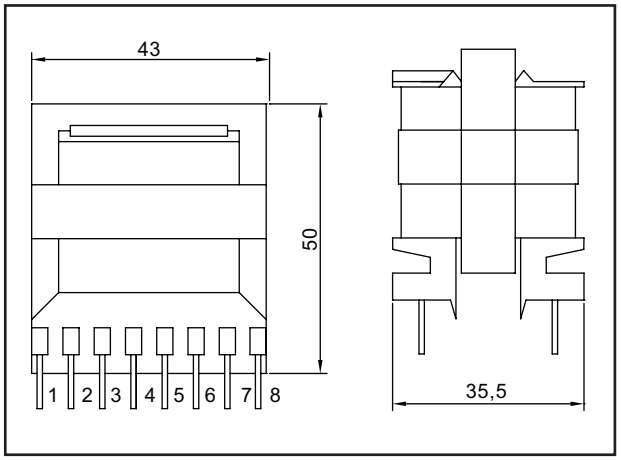
① Collector
② +B
③ E13.5V
④ E -13.5V
⑤ GND
⑥ Heater Voltage
⑦ ABL
⑨ Video AMP Voltage
⑩ AFC Voltage

8.13 SWITCH MODER POWER TRANSFORMER TM-0105-ON

Schematic Diagram



Configuartion & Dimesions

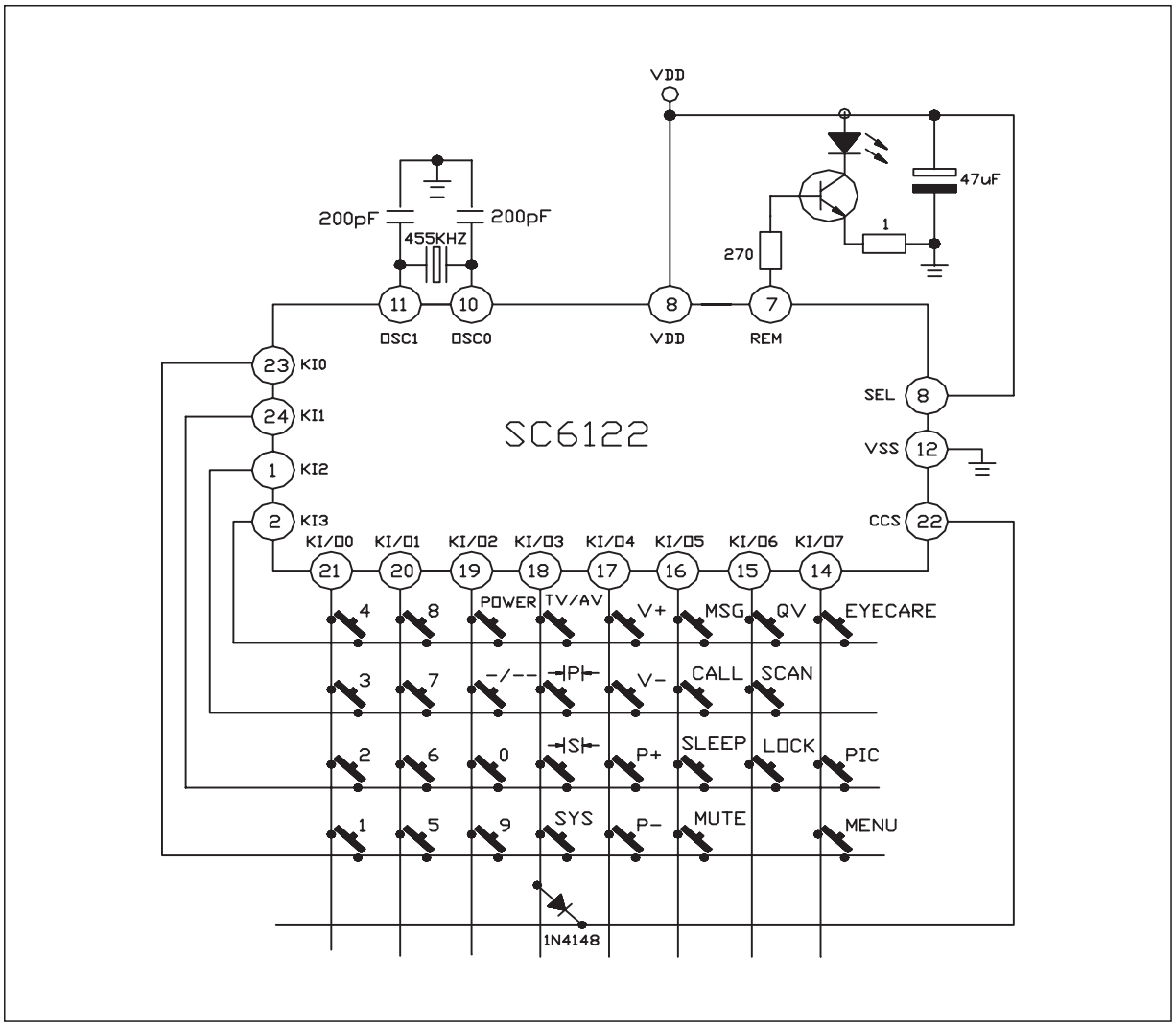


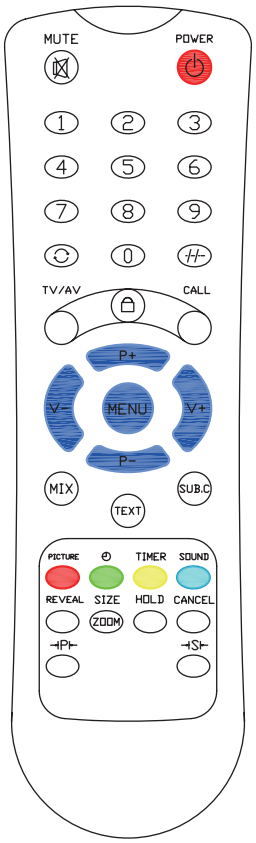
Electric Characteristics

Order	Item	Terminac	Specifition	Test Condition
1	Inductance	7-3	620μH ± 6%	F=1KHz
2	Dcresistencg	7-3	0.26 max	
		12-10	0.25 max	
3	Insulation REsistance	P---S, PS---C	≥ 100MΩ	T=20°C±5°C
6	Output Voltage	12 Pin(+B)	110V	
		13 Pin	27.5V ± 0.5V	
		14Pin	12.3V ± 0.5V	+Dc 500V
		15Pin	16.3V ± 0.5V	
		16Pin	12.5V ± 0.5V	

8.14 REMOTE CONTROL

Schematic Diagram





Note: For Refernce Only

Description Of Remote Control			
IC	CX6122-001	Cleent Code	08
Key Name	Code	Key Name	Code
🔇	10	MENU	OC
⏻	12	P+	1B
1	01	P-	1F
2	02	V+	1A
3	03	V-	1E
4	04	MIX	49
5	05	TEXT	11
6	06	SUB.C	OA
7	07	PICTURE	41
8	08	🕘	45
9	09	TIME	OD
0	00	SOUND	43
-/--	OB	REVEAL	5B
⟲	OE	SIZE(ZOOM)	4C
TV/AV	14	HOLD	4D
🔒	56	CANCEL	55
CALL	16	⊣P⊢	OF
		⊣S⊢	5C

9. TEST POINT WAVEFORMS

2.0Vpp H TMPA889X PIN45	1.3Vpp TMPA889X PIN7	1.2Vpp H TMPA889X PIN52	1.2Vpp H TMPA889X PIN50	1.2Vpp H TMPA889X PIN50
95Vpp H CRT KR	95Vpp H CRT KG	95Vpp H CRT KB	0.9Vpp H TDA111XX PIN56	5Vpp H TMPA889X PIN13
1Vpp V TMPA889X PIN16		22Vpp H HEATER	2.7Vpp H V411 B	1000Vpp H V411 C

10. IC AND TRANSISTOR'S VOLTAGES

TMPA889*

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	5	0	5	2.2	2	0	5	0	0	1.1	2.1	5.5	4.0	4.37
PIN	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
V	7.95	0	2.6	2.2	2.6	3.8	2.4	2.4	-	2.7	0	3	3	3.1	3	3.8
PIN	33	34	35	36	37	3.8	39	40	41	42	43	4.4	45	46	47	48
V	2.9	3.8	2.4	5	2	3	2.9	0	1.9	1.9	2.3	1.8	3	3	5	2.2
PIN	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
V	3.3	2.7	2.6	2.7	0	0	5	0	5	5	0	0	0	0	5	4.1

FSCQ0765RT

PIN	1	2	3	4	5
V	3.9	1.38	16.5	0	327

LA78040

PIN	1	2	3	4	5	6	7
V	0.7	13.5	-11	-13.5	0.14	13.8	0.7

STV8172A

PIN	1	2	3	4	5	6	7
V	0.6	15	-12.8	-14.8	0.25	15.7	0.6

CD7522CS

PIN	1	2	3	4	5	6	7	8	9	10	11	12
V	12	5.8	0	6	3.7	1.3	0	1.3	1.0	6	0	5.8

CD7523CS

PIN	1	2	3	4	5	6	7	8	9
V	12	5.8	0	6	3.7	1.3	0	1.3	1.0

TRANSISTOR

	V101	V900	V444	V411
Ve	0.5	0	0	-0.06
Vc	4.65	0	0.16	112(+B)
Vb	1.29	0.7	0.3	0

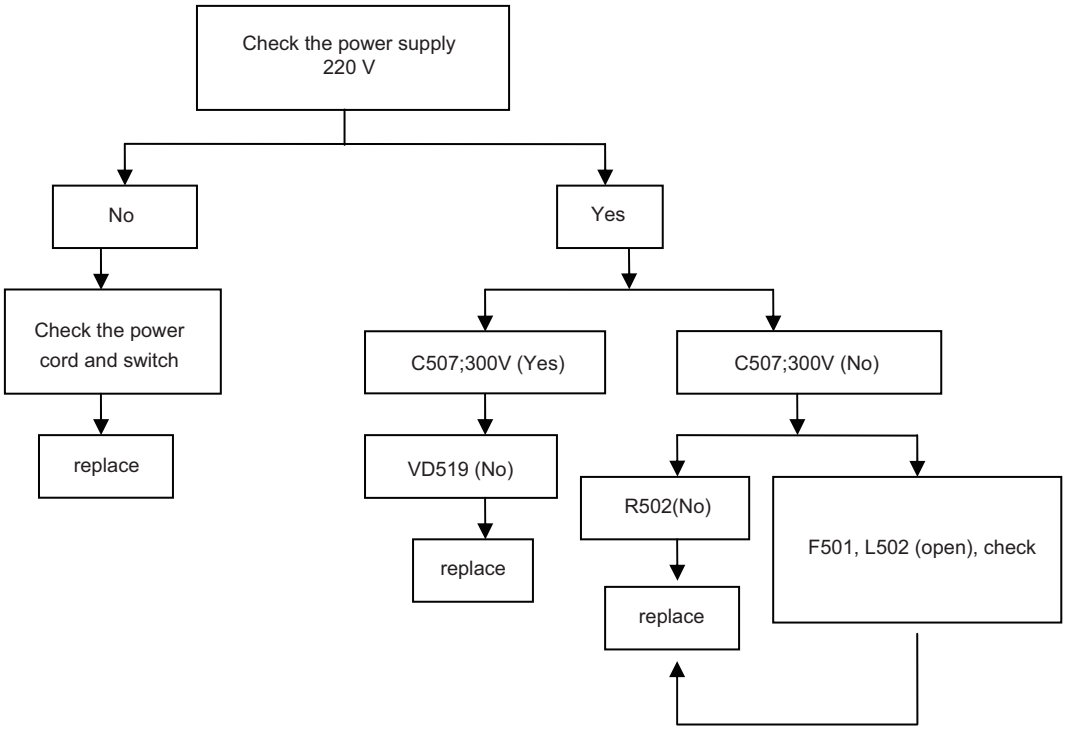
11. COMMON TROUBLE SHOOTING CHART FOR UOC TOSHIBA CHASSIS CRT TV (TMPA889*-****)

This flow chart is used for main board of BS7820.290.
1. Working Environment
The +5V of power is supplied to IR receive circuit, keyboard circuit, reset circuit, RAM N901 pin N204(9) pin, N204 pin, 8MHz crystalloid connected to 7 pin. Pin N204(5) is reset pin of the remote control circuit.

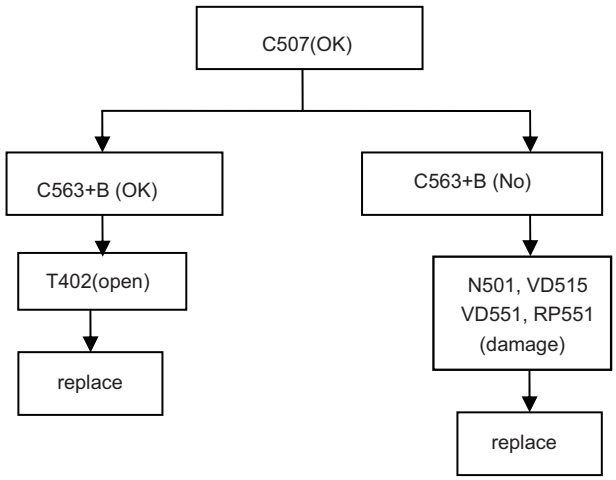
2. I²C Control
There's one group of I2C interface inside TMPA88XX, which is used to control registers and small signal process circuit, transport data, control picture, sound of TV.

3. Power standby/on Control
Pin N204(64) is the control pin of the power standby on/off. When pin 64 is of high level power is on, and when pin 64 is of low leval power is standby

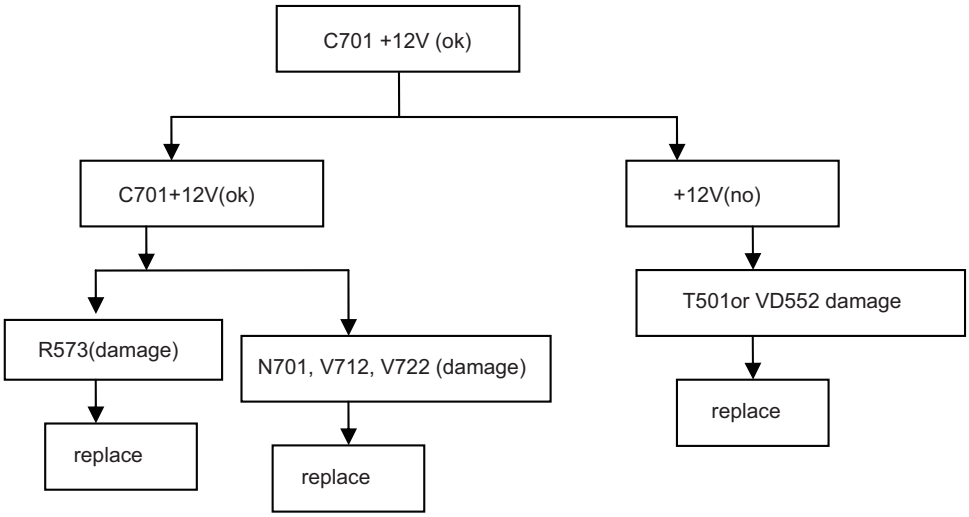
11.1 Electrical Sharacterstics



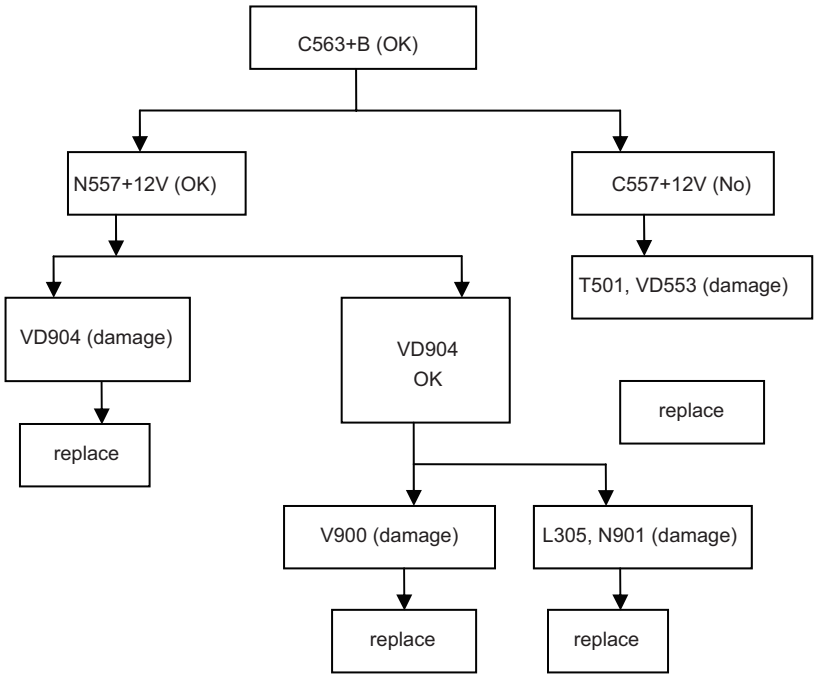
11.2 Indicator Sight Flash



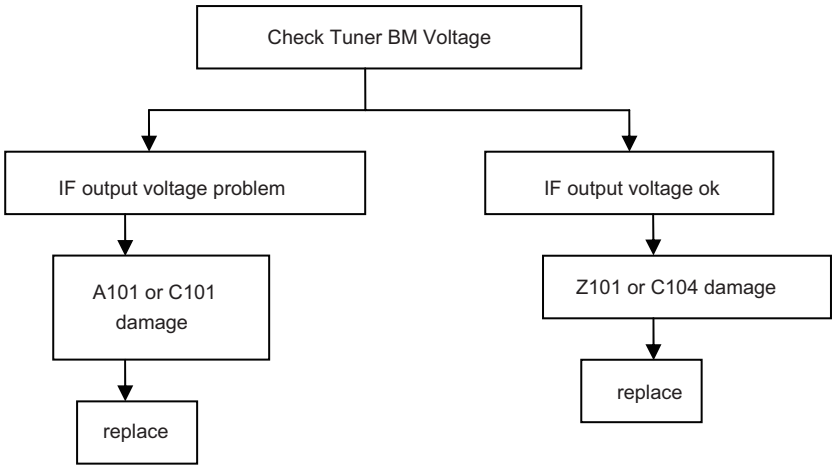
11.3 No Sound



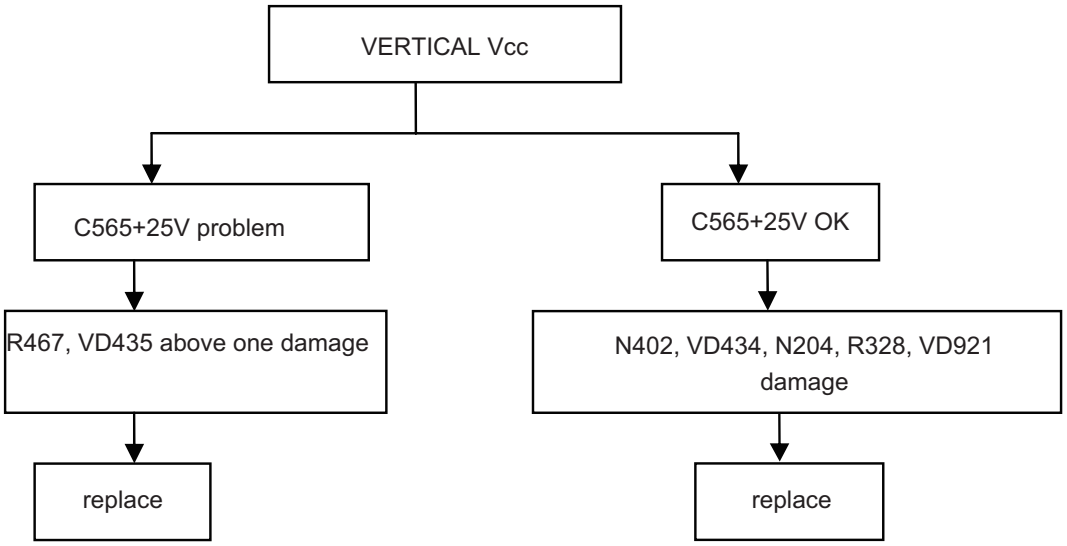
11.4 Standby



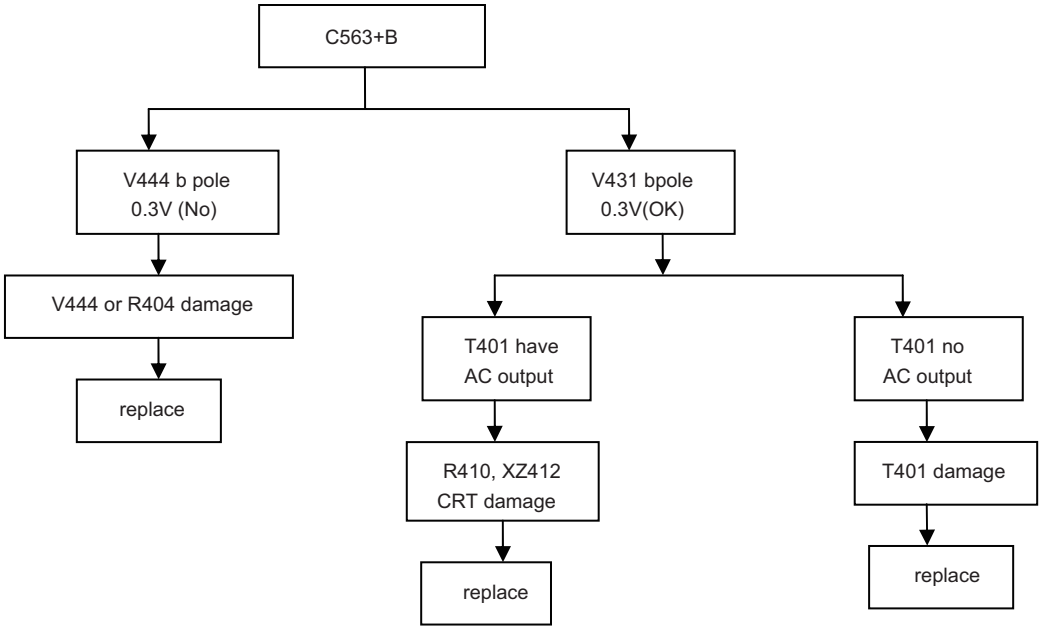
11.5 No Picture



11.6 Frame Light Line



11.7 No Brightness



TMPA8895-7FU7

（ADJUST MANUAL.）

1：IC FUNCTION INTRODUCTION

2：CIRCUIT PRINCIPLE OF MAIN CHIP

3：CONTROL ADJUSTMENT

4：LOGO EDIT

5：IIC BUS ADDRESS

1. IC Function Introduction

1) Consists of two pieces of IC chip in one package using Multi-Chip-Package(MCU) technology. One is a micro controller (MCU) and the other one is a signal processor (SP) for a color TV.

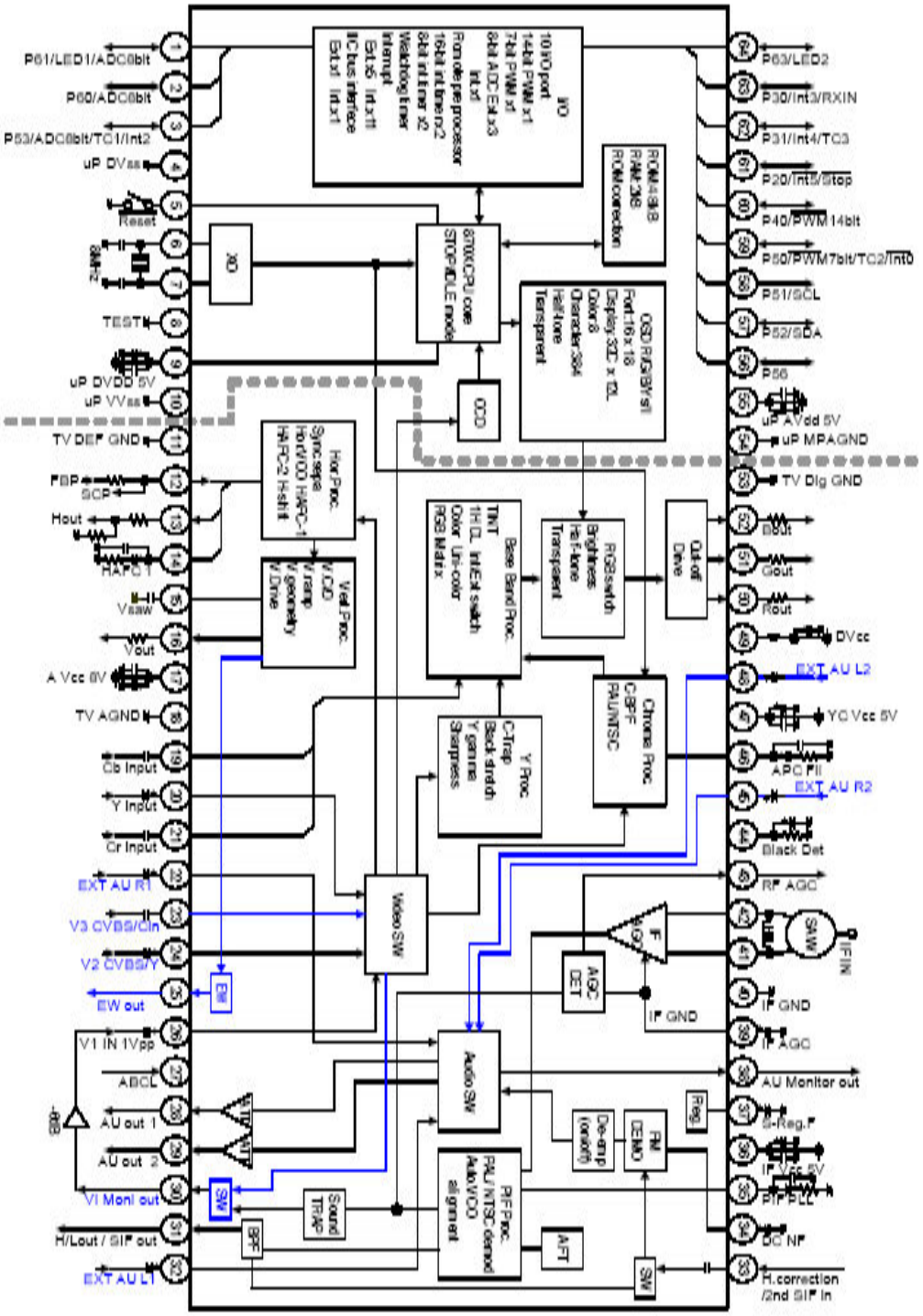
2) Function: MCU and SP

NO.	Icon	Description
1	SCL	Tuner Band selection output
2	SDA	Tuner Band selection output
3	KEY	Key on wake up input
4	UP DVSS	Power Supply GND
5	RESET	Reset signal input
6	XOUT	8 MHz oscillator connecting pins
7	XIN	8 MHz oscillator connecting pins
8	TEST	GND connection
9	UP DVDD(5V)	Power supply 5V
10	UP VVSS	GND connection
11	TV AGND	GND terminal for Analog block
12	FBP IN	Input terminal for FBP
13	H.OUT	Output terminal for Horizontal driving pulse
14	H.AFC1	H AFC filter connection
15	V.SAW	Terminal to be connected capacitor to generate V saw signal
16	V.OUT	Output terminal for Vertical driving pulse
17	H.Vcc	Vcc terminal for DEF circuit
18	TV GND	GND connection
19	Cb in	Input terminal for Cb signal
20	Y in	Input terminal for Y signal
21	Cr in	Input terminal for Cr signal
22	EXT-AUDIO1	Input terminal for external audio signal
23	C in	Input terminal for Chroma signal
24	V2 in	Input terminal for ext Video signal
25	ACL	Automatic volume leveling
26	TV IN	Input terminal for video signal
27	ABCL in	Input terminal for ABL/ACL control
28	AUDIO OUT1	Output terminal for Audio signal
29	AUDIO OUT2	Output terminal for Audio signal
30	MONITOR OUT	Output terminal for detected CVBS signal
31	SIF OUT	Output terminal for detected SIF signal
32	EXT AUDIO1	Input terminal for external audio signal
33	SIF IN	Input terminal for 2nd SIF
34	DC NF	Terminal to be connected capacitor for DC Negative Feedback
35	PIF PLL	Terminal to be connected with loop filter for PIF PLL
36	IF VCC(5V)	Vcc terminal for IF circuit
37	REG FIL	Terminal to be connected capacitor for stabilizing internal bias
38	AUDIO OUT	Audio output
39	IF AGC	Terminal to be connected IF AGC filter

40	IF GND	GND terminal for IF circuit
41	IF IN	Input terminal for IF signals
42	IF IN	Input terminal for IF signals
43	RF AGC	Output terminal for RF AGC control level output
44	BLACK DET	Terminal to be connected with Black Det filter for black stretch
45	EXT AUDIO2	Input terminal for external audio signal
46	APC FIL	Terminal to be connected with APC filter for Chroma demodulation
47	YC VCC(5V)	Vcc terminal for YC
48	EXT AUDIO2	Input terminal for external audio signal
49	R.G.B. VCC(3.3V)	Vcc terminal for RGB circuit
50	R OUT	Output terminal for R signal
51	G OUT	Output terminal for G signal
52	B OUT	Output terminal for B signal
53	TV AGND	GND terminal for Analog block
54	UP A GND	GND for Oscillator circuit
55	UP A VDD(5V)	VDD for Oscillator circuit
56	AV SW(STEREO)	AV1/AV2 switch and S-video Check
57	SDA	IIC bus serial data input/output
58	SCL	IIC bus serial clock input/output
59	50HZ/60HZ	50HA/60HZ Check out (60Hz=Hi. 50Hz=L)/Tuner U
60	VT	Tuning Voltage (Vt) PWM output
61	MUTE(STEREO)	Output terminal for Mute
62	LED/DVD	LED
63	REMOTE	Remote control signal preprocessor input
64	POWER SW	Power control (On=Hi. Off=L)

2. CIRCUIT PRINCIPLE OF MAIN CHIP

TMPA8895 Block diagram



3. Descriptions for the operation of factory mode

- FACTORY MODE
  1) IN AV mode with user remote controller to press “MENU” key to turn to “PICTURE” menu, Input “6483”,then enter “LOGO EDIT” mode.
  2) In “LOGO EDIT” mode. Press “0” enter “B/W BALANCE”,
  3) In “LOGO EDIT” mode. Press “1” enrter “F1”
  4) In “F1” press “TV/AV switch to TV mode ,TV will enter “factory” mode, screen only display “factory”.
- WHITE BALANCE MODE
  1) At TV mode ,when display “factory” , please wait more 10 seconds,press “display” key enter WHITE BALANCE mode.
  2) At WHITE BALANCE mode, press “MUTE”, one horizontal bright line appear on screen, Press “1,4” key to adjust RCUT, “2,5” key to adjust GCUT, “3,6” key to adjust BCUT
- ENTER FACTORY MODE

  A. USER REMOTE CONTROLLER

  1) At WHITE BALANCE mode, press “display” to enter factory’s adjustment menu

  2) At WHITE BALANCE mode, press figure 1,2,3,4,5,6, display to enter “factory” mode.

  B. Press “D-mode” key three time (factory key) to enter factory’s adjustment menu.

EXIT FACTORY MODE

Press “display” to exit from “factory” menu.

- EXPLANATION FOR ADJUSTMENT SPEED KEY

After entering factory mode, some remote controller key function will change to suit for the production

Adjustment.

1) Press “MUTE” key to turn page up
2) Press “CH+” and “CH-“ key to select item, and press “VOL+” and “VOL-” key to change data value.

4. IIC BUS ADDRESS

	EEPROM ADDRESS	TMPA8895 ADDRESS	
R-CUT	20H	08H	00-FFH
G-CUT	21H	09H	00-FFH
B-CUT	22H	0AH	00-FFH
G-DRIVE	23H	0BH	00-7FH
B-DRIVE	24H	0CH	00-7FH
Slave	A0	88	

D382-29-NM Schematic Circuit Diagram 2010_05_06